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A STUDY OF FACTORS ASSOCIATED WITH FAILURE IN SELECTED SUBJECT AREAS OF GRADES TEN AND ELEVEN

by

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A STUDY OF FACTORS ASSOCIATED WITH FAILURE IN SELECTED SUBJECT AREAS OF GRADES TEN AND ELEVEN

"An Abstract of a Thesis"

The problem was basically one of discovering and studying factors related to failure in grades ten and eleven, and of determining the strength of the relationships. The study was confined to five subject areas in a county high school system in Alberta. The problem involved comparison of the passing and failing groups in the five subjects on the basis of grade nine achievement scores and on data from questionnaires completed by the students.

The population for the study consisted of three hundred and one grade ten and eleven students who had completed the questionnaire. The questionnaire yielded data with respect to such items as student attitudes, interests, likes and dislikes, plans, ambitions, and study habits. School and Department of Education records provided data about attendance, grade ten and eleven marks, grade nine achievement and ability. In order to form judgments as to how 'pass-fail' groups differed they were compared with respect to a large number of factors. Conclusions were drawn partly from tests for significance of difference between 'pass-fail' groups.

Grade nine data were collected from the records of the Department of Education and the three high schools. Data was processed by sorting and counting cards on I.B.M. machines. The significance of differences between pass-fail groups was determined by comparison of group means, by chi-square tests and t-tests. The population was not a true random sample of a high school population, therefore rigorous statistical methods were not attempted. The study yielded sufficient data to make it possible to draw inferences about the characteristics of the failing groups in grades ten and eleven.

Failure in grades ten and eleven was found to be closely associated with the following factors: grade nine achievement, reading ability, mental ability, lack of interest, lack of effort, lack of confidence and determination, dislike for subject, poor study habits, being over-age, repetition of one or more early grades, desire to drop out, parental disinterest, registration in an unsuitable program in grade ten, lack of plans for post-high-school education and careers.

The study showed a lack of strong relationship between failure and the following factors: worry, home study conditions, popularity with one's classmates, having a part-time job during the school year, transciency up to the end of grade nine, problems directly connected with the home, and the financial status of the home.

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CHAPTER I

INTRODUCTION

In recent years considerable concern about high school failure and 'dropout' rates has stimulated research in these two problem areas of public education. A recent University of Alberta monograph stated that many students of average and above-average mental ability drop out of school before graduation. The main factors contributing to these dropouts were, "overageness, male sex, low achievement, low mental ability, and low socio-economic status."[1] There is little doubt that low achievement and high school failure run parallel to each other and both tend to contribute to school dropout.

Failure rates for grades ten and eleven are lower than for grades nine and twelve, a situation that has given educators some cause for concern in Alberta. External examinations set by the Department of Education are administered at the end of grades nine and twelve only. Failure rates are about thirty and forty per cent respectively for these two grades but only about twenty-four per cent for grades ten and eleven. The Cameron Commission Report stated that the

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[1]D. B. Black, R. S. MacArthur, and J. G. Paterson, "Pupil Personnel in Alberta Secondary Schools," The Alberta Advisory Committee on Educational Research, Monographs in Education, No. 6, (Edmonton: The University of Alberta, 1961) p. 17.

rather high failure rate for grade twelve matriculation students called for some examination of the promotion policies in grade ten and eleven, and stated further that "this situation must be the subject of serious conjecture."[2]

The student who does not graduate with a high school diploma faces serious difficulty when he seeks employment or training and education for a particular career. The prerequisites for entrance into many forms of post-high-school education or training have been upgraded during recent years and this trend shows signs of continuing for some time to come. Competition in the business and industrial fields has increased with the result that applicants for jobs must acquire more education and better training before they are acceptable to employers. Many students capable of completing high school drop out without diplomas, only to find themselves limited in choice of careers and jobs. Many such who do find employment become discouraged because they are unable to attain and maintain satisfactory job competency.

Students who fail high school subjects are prone to discouragement especially if they have had difficulty in earlier grades. There is considerable evidence that low achievement, whether from underachievement or not, increases a student's dissatisfaction with himself and his whole school

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[2]The Report of the Royal Commission on Education in Alberta, (Edmonton: The Department of Education, 1959), pp. 90-92. (mimeographed).

experience. Chabassol,[3] in a study of underachievement stated that:

> At every level, both in school and university, there are to be found students who are doing mediocre work, or even failing, when, according to the results of standardized intelligence tests, they are capable of better performance. The importance of such underachievement is realized only when one pauses to consider its effects upon the child, and his family, the school and the teacher, and upon society in general.

A generation or two ago the consequences of school failures were not as serious as they are today because those who failed and dropped out, or perhaps simply dropped out for reasons other than failure, were usually able to secure jobs. These persons by dint of hard work, sacrifice, and a desire to succeed, often made a place for themselves in our economy and became competent in some worthwhile field of endeavor. Today the high school student leaves school to step into an entirely different world in which the emphasis is on adequate training and preparation before seeking permanent employment. Failure in high school programs, if followed by dropout, may condemn a student to a life of unhappy and unrewarding work because his lack of education limits his opportunities and career possibilities.

It is likely that in any school system, there are

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[3] D. J. Chabassol, "Correlates of Underachievement in Male Adolescents" (unpublished Doctoral thesis, The University of Alberta, Edmonton, 1959), p. 2.

students who, for various reasons, cannot be retained until graduation. They will drop out in spite of efforts by both school and society to hold them in school. Such students are usually those who were not doing well or did not feel interested or challenged by the school. Some of these students lack ability, but many are quite capable of completing their high school programs successfully. However, "it is those who are average or above average in general ability and who are able to complete, or almost complete, secondary school, who are a serious loss to society."[4]

I. PURPOSE OF THE STUDY

Not all students who enter grade ten can hope to succeed in high school. For one or more reasons, which are referred to as factors in this study, certain students will find certain high school subjects too difficult, too dull, or too unchallenging to retain their interest and effort. It is regrettable that lack of ability, effort or interest has doomed many students to failure. Yet, it is a well-known fact that many capable students fail high school courses that are well within their capability. Conversely,

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[4]"Two Years After School," A Report of the Canadian Research Committee on Practical Education," (Toronto, March, 1951), p. 12.

many average and below-average pupils do well in certain high school programs because of genuine interest, application, and determination.

This study attempted to identify some of the factors thought to be associated with failure in high school subjects. Identification itself was not thought to be particularly valuable unless it was followed by some process of evaluation in order to determine the extent or degree of the association between the factors and failure. It was therefore necessary to determine the nature of a factor and then measure the degree to which it was associated with failure in school subjects. To be more specific, the purpose of this study is three-fold:

1. To show from grade nine final examination results and responses to a student questionnaire that factors associated with failure can be identified.

2. To study the possibility that failure in selected subject areas of grades ten and eleven may be associated with several factors besides grade nine achievement, mental ability, and reading ability.

3. To select from the large number of factors studied, those that had no association with failure, in other words, to identify nonsignificant factors.

II. IMPORTANCE OF THE STUDY

Failure in high school represents a loss to the student, to the school, to the community, and to the country. Society

must pay a price for both failure and student dropout--a price far in excess of the cost that may be involved in finding effective ways of preventing failure and dropout. There is a need for further investigation of the whole field of underachievement and failure in our high schools. This need is now becoming more pressing in view of the increasing diversification of high school programs and the extension of high school education to a greater number of students through the development of vocational high schools.

Every student who passes grade nine is entitled to an opportunity to attend high school and to proceed in a selected program as far as his ability and ambition will take him. Our society has extended this right to all who enter high school but not all avail themselves of the opportunity. Studies completed recently "substantiate the view that many able pupils are not continuing their high school education through to conclusion."[5] Low achievement which, in many cases amounted to failure, was associated with dropout in the study just cited. A study of failure was considered important for the following reasons:

1. Principals, school guidance counselors, teachers and parents should have a knowledge of the factors associated

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[5] Pupil Personnel in Alberta Secondary Schools, A Report Prepared by the Alberta Advisory Committee on Educational Research, (Edmonton: The University of Alberta, 1961), p. 12.

with failure in grades ten and eleven.

2. It was considered important to find out those factors associated with grade nine achievement that can be used as predictors of success in grades ten and eleven in a matriculation program.

3. The selection of a suitable grade ten high school program depends on a thorough knowledge of the student and an understanding of factors associated with failure. It was thought important to know which failure factors applied in the cases of particular students.

4. A knowledge of factors associated closely with high school failure in Mathematics 10 and 20, Science 10 and 20, Language 10 and 20, Literature 10 and 20, and Social Studies 10 and 20, would assist the school in directing students into the most suitable programs at the commencement of grade ten.

5. The development of vocational high schools in Alberta makes it desirable, if not imperative, that career counselling during grade nine and at the commencement of grade ten be closely related to the student's interests, abilities, and work potential as shown by previous achievement.

III. STATEMENT OF THE PROBLEM

The problem was basically one of discovering and studying factors that were associated with failure in grades ten and eleven in a county high school system in Alberta.

The problem involved study of passing and failing groups in order to determine some of their characteristics, and further, to find out which characteristics were related to failure. From the areas of school experience and achievement, factors related to failure had to be identified before inferences could be drawn as to whether the relationship was strong or otherwise.

Statement of Sub-Problems

Growing out of the main problem as stated above were the following sub-problems:

1. It was necessary to set up the total population for the study into pass-fail groups on the basis of achievement in five selected subject areas, Mathematics 10 and Mathematics 20, Science 10 and Science 20, Language 10 and Language 20, Literature 10, and Literature 20, Social Studies 10 and Social Studies 20. The problem then became one of selecting those areas of school experience and achievement in which pass-fail groups were to be considered.

2. The degree of relationship between certain 'factors' and school failure had to be determined in order to divide those 'factors' into three groups as follows: (1) those that were strongly related to failure, that is, closely associated with it; (2) those that were somewhat related to failure but not strongly; (3) those factors that

were either common to both passing and failing groups and in approximately the same degree, or else were not associated with failure.

Several sub-problems consisted of questions. Answers to these questions provided data upon which to base comparisons of pass-fail groups. Several such questions appear below:

3. Was failure closely associated with lack of reading ability and mental ability?

4. Was failure closely related to unsatisfactory grade nine achievement as indicated by a low total stanine count?

5. Was high school failure associated with such factors as: lack of determination and interest, poor attitude and study habits, dislike for school subjects and teachers, transciency, being over-age, having repeated one or more earlier grades and the like?

6. To what extent could failure be attributed to home factors such as poor study conditions, and to school factors such as participation in extra-curricular activities?

7. To what extent was failure associated with such factors as: lack of career goals, lack of plans for post-high-school education, lack of home study and parental encouragement?

IV. ASSUMPTIONS

For the purpose of this study certain assumptions were made. These assumptions appear in the list below:

1. It was assumed that conclusions drawn from the study of failure in grades ten and eleven in the County of Strathcona in 1960-61 would not necessarily apply to high school populations in other parts of Alberta unless such school populations possessed the same characteristics.

2. Failure was assumed to be a common problem in all Alberta high schools, but the failure rates for Strathcona County in 1960-61 were not necessarily representative of all counties and school divisions in Alberta, or in fact, of any of them. However, it was assumed that the failure rates for the questionnaire group in the five subject areas included in the study would be roughly comparable to those for the total grade ten and eleven population for the County of Strathcona in 1960-61.

3. It was assumed that the Provincial failure rates for grades ten and eleven in the five selected subject areas for the year 1955 may have changed considerably by 1960-61. The 1955 rates were used only as reference points or bench marks for comparison.

4. It was assumed that the students who answered the questionnaire did so in good faith and with as much care and

accuracy as one could expect from similar groups in Alberta.

5. A chi-square test of probability of difference was considered valid for drawing of inferences even though the population did not meet the most rigid requirements of classical sampling theory.

6. The questionnaire population was assumed to be a fair cross-section of the grades ten and eleven populations of Strathcona County in 1960-61.

7. It was assumed that the students comprising the population for the study could recall with reasonable accuracy the thoughts, feelings, and attitudes that they had experienced during the school year 1960-61.

8. It was assumed that a relatively small population of three hundred one students would provide data from which the conclusions reached would have application to similar areas of Alberta in a limited sense only.

9. It was assumed that the data from Department of Education records with respect to Grade nine achievement were accurately recorded and based on tests thought to be possessed of satisfactory coefficients of reliability and validity.

10. The Mathematics 10 and 20, and Science 10 and 20 groups had a greater percentage of matriculation students in them than did the other three subject areas of Language, Literature, and Social Studies.

V. DEFINITION OF TERMS

Failure. When a student received a mark of less than a 'B' in a high school subject he was said to have failed that subject. This definition for failure was used by the Department of Education for Alberta in its submissions to the Royal Commission on Education in Alberta.

Dropout. A student who leaves high school without receiving a high school diploma was classed as a dropout. Such students are sometimes called 'school leavers'.

High School Programs. Five types of high school program offered in various Alberta high schools are as follows: (a) Matriculation, (b) Business Education, (c) Combined Business-Matriculation, (d) Technical Education, (e) General.

Factor. Certain facets of school performance can be more closely associated with failure than with passing. For example, lack of ability is a facet or factor of a student's school performance in some instances. In another case failure may have been associated with ill-health, and in such a case ill-health was a factor in failure.

Pass-Fail Groups. This term is an abbreviation for the expression 'passing and failing groups'. The expression

referred to the students who passed or failed a particular subject of the five selected subject areas. In certain instances the expression referred to achievement of a combined group such as would occur if you combined the students of Mathematics 10 and 20, then divided them into those who passed and those who failed.

Sequent Course. A sequent course was a course that followed a previous course such that a 'B' or better had to be earned in the previous course in order to be eligible to take the sequent course. Science 20 is the sequent course to Science 10.

Raw Score. The student's raw score was the raw score obtained on the grade nine final Reading Test or on the final Ability Test. In the latter test raw score usually referred to the combined raw scores of the quantitative and verbal sections of the final Ability Test.

Total Stanines. The sum of the six stanine scores on the grade nine final examinations made up what was called a 'total stanine' score. This total score was therefore based on stanine scores from the following tests: Reading, Literature, Language, Mathematics, Science, and Social Studies.

Pass Group. This referred to those students in a subject who achieved a pass mark of 'B' or better.

Fail Group. This referred to a group of students who received marks of 'C' or 'D' in a particular subject.

Non-Matriculation Programs. All high school programs not classed as matriculation were called non-matriculation programs.

Questionnaire Group. The students, three hundred one in all, who answered the questionnaire satisfactorily were included in the questionnaire group.

Matriculation Subjects. Mathematics 10 and 20, and Science 10 and 20 are almost always required of students in matriculation programs. In this study they will always be referred to as matriculation subjects.

VI. RESEARCH DESIGN

In order to proceed with this study of failure and factors associated with it, a grade ten and eleven high school population was required. The grade ten and eleven population of the County of Strathcona for the year 1960-61 was selected. To as many of these students as could be contacted, a student questionnaire was administered in May and June of 1962. Approximately eighty per cent of the students returned the questionnaire, thus giving a population of three hundred one pupils.

By comparison of pass-fail groups of the five selected subject areas on the basis of grade nine achievement, reading, ability, and the responses to the questionnaire items, factors were identified that were associated with failure. The five subject areas were as follows: Mathematics 10 and 20, Science 10 and 20, Language 10 and 20, Literature 10 and 20, and Social Studies 10 and 20.

Significant differences between pass-fail groups were measured by means of chi-square tests, t-tests, and comparison of group means of passing and failing groups. Comparison of pass-fail groups in grade nine total stanines, reading raw score, and combined ability raw scores was accomplished by means of t-tests. Most of the items of Parts One and Two of the questionnaire yielded responses that could be classified as either 'positive' or 'negative' and therefore pass-fail groups could be compared by means of chi-square tests of probability.

Certain data such as grade entrance age, record of transciency, and student estimates of hours spent in home study, were best treated by calculating means for passing and fail-groups, then comparing the group means. From such comparisons inferences were drawn with respect to factors that were related to failure. For example, it was expected that the data on hours of home study would reveal that passing students spent more time studying at home than did the failing students.

Rationale for Data Selection

Because grade nine final examination results are thought to be reliable predictors of success in senior high school it was felt that the pass-fail groups could be compared on the basis of total stanines, reading ability, and mental ability.[6] It was necessary, therefore, to collect the grade nine final examination results for all students in the study.

Over-ageness is often associated with failure and dropout, so grade entering ages in months were required in order to determine whether pass-fail groups differed on this factor.

It was felt that differences between pass-fail groups on such factors as attitudes, interests, likes, dislikes, self-perceived reasons for failure, determination to success, post-high-school plans and the like, could best be determined by examining data from a student questionnaire. A questionnaire was therefore required. (See Appendix B)

Types of Data Required For the Study

Three types of data were required for the study. They were as follows: (a) achievement results taken from the grade

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[6]D. B. Black, "The Prediction of University Freshman Success Using Grade Nine Departmental Examination Scores," The Alberta Journal of Educational Research, Vol. V:4, December, 1959, pp. 229-230.

nine final examination records for each student, (b) school records, (c) responses to a large group of items contained in a student questionnaire. A description of each type follows:

Data From Grade Nine Final Examinations. From the grade nine final examinations results taken from Department of Education records the following items of student achievement were taken: (a) total stanine count, (b) combined raw scores of the quantitative and verbal sections of the ability test, (c) the reading raw score.

Data From School Records. School records provided the following data for all grade ten and eleven students in the population: (a) attendance for 1960-61, (b) the final marks from the principal's confidential returns for Mathematics 10 and 20, Science 10 and 20, Language 10 and 20, Literature 10 and 20, and Social Studies 10 and 20, (c) Intelligence quotients, (d) addresses of students who had left Strathcona County before May, 1962.

The Questionnaire. A copy of the grade eleven questionnaire appears in the appendix. The grade eleven questionnaire was different from the grade ten model in that its wording was adapted to suit the grade eleven group. The questions asked were otherwise identical. The questionnaire, arranged in three parts, was designed to provide data about such items as the following: (a) attitude, (b) confidence in one's ability, (c) interest, (d) determination to

succeed in school, (e) post-high-school plans and the like. Parts One and Two were devoted mainly to this type of question.

Part Three provided information about the students with respect to the following items: (a) average number of hours spent per week in study at home, (b) record of transciency, (c) father's occupation, (d) age on entering the grade as of September, 1960, (e) the number of 'home aids to study' used in the home by the student.

The Population For the Study

Three hundred one students answered the questionnaire and became the population for the study. This group was made up of one hundred fifty-nine grade ten students and one hundred forty-two grade eleven students. The percentage return was approximately eighty per cent for both groups.

Hypotheses to be Tested

The purpose of the study was to determine whether certain factors or characteristics of student experience and progress were closely associated with failure. In order to extract such information from data it was necessary to set up a number of hypotheses. It was thought that these hypotheses, which were little more than "shrewd guesses," might reveal the degree of association between failure and

various factors suspected of being related to failure.[7] It was suspected that failing students in both grades ten and eleven would fall below passing students when compared as to total stanine count, raw score reading and combined raw score ability taken from the grade nine final examination results. The significance of differences could be determined by suitable tests.

It was suspected further that failing students would tend to be older than passing students, that they would do less homework, use home study aids less, and have a history of repetition of earlier grades.

It was expected that the responses to the questionnaire items would reveal that failing students tend to have the following characteristics:

1. They have more negative attitudes, or what one may call 'unsatisfactory' attitudes towards school, school subjects, teachers, and work.

2. They lack interest in: school achievement, career plans, post-high-school education, extra-curricular activities, holding part-time jobs, getting a high school diploma, and the like.

3. They tend to cause parents more worry, and receive

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[7]Carter V. Good, and Douglas E. Scates, Methods of Research, (New York: Appleton-Century-Crofts, 1954), p. 90.

less encouragement from parents to do well in school.

4. They tend to want to drop out and get a job.

The hypotheses to be tested are grouped into six broad categories as follows:

Grade Nine Achievement. Failing students in both grade ten and eleven score significantly below passing students in total stanine count, raw score reading and combined raw score ability taken from grade nine final examination results.

Attitudes, Interests, and Confidence in One's Ability. Failing and passing students are distinguished from each other on the basis of the following factors:

1. Failing students tend to dislike the teachers who teach the subjects in which they fail.

2. Failing students tend to dislike subjects in which they fail.

3. Failing students feel that subjects in which they fail are not likely to be useful later on.

4. Failing students tend to lack confidence in their ability to succeed in the subjects in which they failed.

5. Failing students are less interested than passing students in passing grade twelve.

6. Failing students are less satisfied with their high school program.

7. Failing students are less interested in attaining a high degree of scholarship in high school.

8. Failing students tend to be dissatisfied with with their high school program.

9. Failing students have less-effective 'home study' programs.

10. Failing students tend to lack confidence in their ability to complete grade twelve satisfactorily.

11. Failing students worry more than passing students about health and choosing a suitable career.

12. Failing students tend to dislike high school.

Home and Parental Factors. Failing students tend to differ from passing students on the basis of factors related to the parents and the home. Eight hypotheses follow:

1. Failing students tend to have more unsatisfactory home relationships than passing students.

2. Failing students tend to have unsatisfactory home study conditions.

3. Failing students tend to receive less encouragement from parents or guardians than the passing students.

4. Parents of high school failures tend to show less interest in their children's school progress, and in post-high-school education for them.

5. Parents of high school failures show greater dissatisfaction with the progress of the students and exhibit a greater measure of disagreement as to the proper high school program for them.

6. Parents of failing students show less interest in the school and its program.

7. Parents of failing students are less able to finance post-high-school education for their children.

8. Failing students tend to come from broken homes or homes where parents are estranged or where one or both parents are deceased.

Student Aspirations and Adjustment to High School. The unsuccessful students tend to differ from successful students in such matters as determination to stay in school, adjustment to high school and post-high-school aspirations. The following hypotheses were grouped in this section:

1. Failing students differ significantly from passing students in that they: (a) are less interested in post-high-school education, (b) are less popular with their classmates, (c) show less interest in extra-curricular activities, (d) want to quit at the end of the year, (e) have part-time jobs during the school year, (f) have intentions of quitting at the end of the year to take up full-time jobs, (g) change their high school program during the year, (h) plan post-high-school programs other than attending a university.

2. Failing students feel that they would have been motivated to greater efforts if there were final Department of Education examinations at the end of both grades ten and eleven.

3. Failing students feel that the work of the previous year had prepared them poorly for the work of the

current year.

Overageness, Transciency, Socio-economic Status, and Home Study Aids, Repetition of Earlier Grades, Home Study Hours. The following hypotheses were included in this section:

1. Failing students tend to be over-age.

2. Failing students live in a greater number of communities up to the end of grade nine.

3. Failing students tend to come from homes of lower socio-economic status than the passing students.

4. Failing students make less use of aids to study found in the home, and tend to study fewer hours.

Testing Hypotheses

Three types of tables were prepared as follows: (a) two-by-two tables for chi-square tests of probability; (b) contingency tables for analysis of variance by means of t-tests; and (c) tabulation of group means for pass and fail groups separately from which simple point or percentage comparisons could be made.

All chi-square tests were based on pass-fail groups in the five subject areas using the total population of three hundred one students. Responses to a questionnaire item such as, "Did you plan to quit school and seek a job at the end of the grade ten year?" were divided into two main groups on the

basis of pass and fail, then responses for these two groups were divided on the basis of 'yes' and 'no'. These data then were used in a chi-square test.

Applying the Chi-Square Test. In order to illustrate how the chi-square test was applied to data from Part One of the questionnaire a sample tabulation is shown on page 25. The question asked was, "How much confidence did you have in your ability to complete Science 10 (or Science 20 if the student was in grade eleven) satisfactorily?" The responses were classified as 'positive' or 'negative' depending on the degree of confidence as shown by the students' responses. Positive and negative responses were then summed for pass-fail groups for both Science 10 and 20. A composite score for each cell of the two-by-two table was secured and entered. Table I is shown on page 25.

Using the combined scores of the two-by-two table a X^2 value of 12.6 was obtained. This value was highly significant at the one per cent level of confidence. The inference drawn from this test was that lack of confidence and failure were closely associated. In the contingency tables based on responses to all questions in Part One, and questions one to seventeen inclusive, of Part Two, some of the cells contained frequencies less than five. In these cases it was necessary to apply a correction factor such as that suggested

TABLE I

STUDENT CONFIDENCE IN ABILITY TO PASS
SCIENCE 10 OR 20. QUESTIONNAIRE
ITEM 10 - PART ONE

Type of Response	Science 10		Science 20		Combined Scores	
	Pass	Fail	Pass	Fail	Pass	Fail
Positive	57	8	33	8	90	16
Negative	39	21	34	20	73	41

by Yates.[8]

Difference Between Two Means-Sample Groups Unequal Size. In order to test pass-fail groups in grades ten and eleven for differences as to total stanines, raw scores in reading and the raw combined scores on the Ability Test, a test based on the comparison of means was used. This test was suitable for the type of groups to be tested and made use of group means and separate group variances.[9]

The test yielded a t-value the significance of which could be established by reference to a standard table of t-values. The test was thought useful because the difference in variances were not likely to be extreme, and the size of each group was sufficiently large to make modification of the test design unnecessary.

The formula for the t-test was as follows:[10]

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{x_1^2}{k_1 (k_1 - 1)} + \frac{x_1^2}{k_2 (k_2 -)}}}$$

[8]Frank Yates, "Contingency Tables Involving Small Numbers and the Test," Supplement to the Journal of the Royal Statistical Society, 1: 1934, pp. 217-234.

[9]James E. Wert, Charles O. Neidt, and J. Stanley Ahman, Statistical Methods in Educational and Psychological Research, (New York: Appleton-Century-Crofts, Inc., 1954), pp. 129-133.

[10]Ibid. pp. 131-132.

Limitations of the Research Design

This study had certain limitations placed upon it by the nature of the design, and the data upon which judgments were made. Primarily of the 'questionnaire' type, it made considerable use of the chi-square test for drawing inferences. Limitations placed upon the validity of the inferences and conclusions were as follows:

1. The student population was not a truly random sample drawn from a single homogeneous population. Some students failed to return the questionnaire thus reducing the sample population to approximately eighty per cent of the total grade ten and eleven enrollment for the year 1960-61.

2. Inferences drawn from the study were applicable to school students in areas that possessed similar high schools and similar rural-urban population ratios. It was thought that a considerable number of semi-rural school divisions and counties would resemble Strathcona County with respect to the quality of the high school programs offered and the characteristics of the student populations in grades ten and eleven.

3. The questionnaire was administered in May and June of 1962. A year had elapsed since the students included in the study had been in grades ten and eleven.

The students were still in school, however, and it was thought that they would be able to achieve greater objectivity in their responses because of the time lapse. It was felt that the time lapse was not a serious factor that would invalidate the questionnaire responses. Nevertheless it was recognized that a few students, in answering the questionnaire, may have had difficulty recalling accurately how they felt about their school progress and experience the year before.

4. The validity of the conclusions would have been greatly increased if the population had been large and selected according to the procedures recommended for random samples.

VII. SUMMARY

The purpose of the study was to study factors that may be associated with high school failure. The problem was one of devising a research design that would make it possible to identify pertinent factors. School records from achievement in grades nine to eleven were used along with a questionnaire. The data from the questionnaire was subjected to tests and comparisons to determine whether differences observed between pass-fail groups in grades ten and eleven could have been due to sampling fluctuation.

The study was based on data from three hundred one grade ten and eleven students who attended Strathcona County high schools in 1960-61. It was expected that some new facts would come to light, while at the same time, the conclusions of other studies in the field of high school failure could be verified.

It was thought that findings from the study could serve a useful purpose in assisting teachers to better understand the needs and problems of students in high schools in Alberta.

CHAPTER II

RELATED LITERATURE

This chapter contains a review of studies, reports, and articles related to failure, under-achievement, and dropout. In many dropout studies it was evident that factors associated with dropout were also closely related to failure in school. This duality of association was kept in mind in the selection of suitable studies related to failure in high schools in the Province of Alberta.

I. TEACHER ATTITUDE

The Rocchio-Kearney Study

Rocchio and Kearney measured the degree of relationship between the attitudes of teachers and the rates of failure observed in their classes.[1] The Minnesota Teachers' Attitude Inventory (MTAI) was administered to three hundred ninety-five teachers in the Mid-Western United States. The MTAI was used for the purpose of establishing practical coefficients of correlation between MTAI scores and student failure rates. It took into account both the teacher's sex

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[1]Patrick D. Rocchio, and Nolan C. Kearney, "Teacher-Pupil Attitudes as Related to Non-Promotion of Secondary School Pupils," Educational and Psychological Measurement, Vol. 16, (Summer, 1956), pp. 244-252.

and subjects taught. The purpose of the study was to test the hypothesis that teacher attitude was associated with failure rates in subjects taught by those teachers.

The passing and failing rates for the students were carefully worked out. Each teacher was given an attitude index based on his or her MTAI score. Correlations were worked out and inferences drawn from them as to the relationship between negative teacher attitude and failure. Separate correlations were worked out for teachers of academic and non-academic subjects.

It was concluded that high school teachers with low MTAI scores tended to have undesirable teacher-pupil relationships. Such teachers tended to create an atmosphere of tension and fear that militated against high achievement in their students.[2] Such teachers tended to think in terms of subject matter rather than the real needs of the students. It was concluded that teachers who were able to maintain harmonious relations with their pupils had higher passing rates. High MTAI scores seemed to indicate that teachers were interested in their students as persons, consequently this interest was reflected in higher passing rates and better teacher-student relationships.

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[2]Rocchio and Kearney, op. cit., pp. 250-251.

The correlations between the teacher's failure rate and such factors as teacher's age, sex, and subject taught, were low and non-significant. Rocchio and Kearney concluded that unsatisfactory teacher attitudes contributed to failure in high school.

II. STUDENT ATTITUDE

Several studies have reported that underachievement, failure, and dropout were closely associated with undesirable student attitudes. Two such studies are reported here:

The Chabassol Study

One of the most comprehensive Alberta studies on the subject of underachievement and its correlates was undertaken by Chabassol.[3] The study was limited to underachievement among male adolescents. Significant was the conclusion that there was a strong relationship between poor student attitude and underachievement. Those factors studied by Chabassol that were closely related to student attitude are listed here in part:

1. Feelings of rejection--the boys often felt that they were being rejected by one or both parents.
2. The boys often had poor opinions of themselves.

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[3]D. J. Chabassol, "Correlates of Underachievements in Male Adolescents," (unpublished Doctoral Dissertation, The University of Alberta, Edmonton, 1959), pp. 1-357.

3. The boys were often self-rejecting.
4. The boys did not get along well with their classmates.
5. They resented being cast in the role of 'followers'.
6. They tended to accept the domination of others.
7. They often thought of themselves as weak or ineffective.
8. They tended to overact to the situation at hand.
9. They tended to act quickly without giving thought to the consequences of their acts.
10. They lacked ability to seek out long-range goals.
11. Their relationships with teachers were not always harmonious.
12. They admitted that they were underachievers.
13. They often had unrealistic aspiration levels.
14. The achievers found Mathematics less difficult than did the underachievers.
15. Interest in extra-curricular activities was lacking.
16. Occupational plans did not match measured interests.
17. They more than often selected non-professional goals.
18. Their goals were unrealistic in the light of their mental capacities as measured by I.Q. scores.[4]

Two hypotheses supported by Chabassol have a bearing on student attitude: (a) underachievers tended to have a poor attitude towards school; (b) underachievers lacked confidence in their ability to do well in school subjects.[5] It was concluded by Chabassol that a poor attitude towards school when

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[4]Chabassol, loc. cit., pp. 194-201.

[5]Ibid., p. 100.

combined with lack of confidence tended to place a male adolescent in the underachievement group.

Canadian Research Committee Report

A report entitled "Your Child Leaves School" listed many factors that appeared to be closely associated with dropout.[6] It listed lack of interest as the most important single reason for dropout. Lack of interest was found to be related to such factors as: lack of ability to do well in school courses, desire to quit and earn money, attitude of parents, and maladjustment. The report also found that unsuitable curricula contributed to dropout rates in schools. It recommended that students should be guided into courses and programs that suited their particular abilities, aptitudes and interests.[7]

III. OTHER STUDIES AND REPORTS RELATED TO HIGH SCHOOL FAILURE

A number of other studies have discussed underachievement, dropout, and failure. A multiplicity of factors have been associated with the specific problem of failure and certain recommendations have been made for the

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[6] Your Child Leaves School, A Report Prepared by the Canadian Research Committee on Practical Education, Ottawa, 1950, p. 18.

[7] Ibid. pp. 49-56.

reduction of failure in the high schools of Alberta and elsewhere. A number of these studies have been selected for review in this section.

The Coleman Study

Coleman attempted to analyze the factors associated with failure in high school. He concluded that lack of interest was an important factor associated with failure.[8] There was no conclusive evidence that any one factor, taken in isolation, was the reason for the student's failure. Coleman suspected that failure was often the result of a number of factors operating together. He attributed failure to the following factors: (a) low socio-economic level of the home, (b) poor foundation in the learnings of the previous year, (c) unsatisfactory school philosophy. Evidence that these three factors gave rise to poor student attitudes and lack of interest was somewhat inconclusive in Coleman's report.

The Lafferty Report

This research report, though not based on an exhaustive investigation, nevertheless did survey a sufficient

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[8]W. C. Coleman, "A Job Analysis of the Causes of High School Failure," "Encyclopedia of Educational Research, (New York: The MacMillan Company, 1941), pp. 441-442.

number of students to make the findings of the study worthy of note.[9] pupils were asked to state their reasons for failure. They placed 'lack of interest' first on the list. Lafferty listed the following additional factors that he considered to be closely associated with failure in school:

1. Irregular attendance.
2. Low I.Q. as measured by standardized I.Q. tests.
3. Lack of interest. (Stated above)
4. Physical defects and poor health.
5. Lack of effort on the part of the student.
6. Unsatisfactory home conditions.
7. Poor foundation studies in previous grades.
8. Having a great deal of outside work to do.
9. Failure to complete enough of the work.
10. Possession of too many outside interests.
11. Lack of application due to laziness.
12. Failure of tests given during the year.[10]

Both loleman and Lafferty found that lack of interest was often given as a reason for high school failure.

The Allison Study

Allison's study was designed to investigate the characteristics of grade seven students who had failed in the Edmonton Public School System in 1952.[11]

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[9]H. M. Lafferty, "Reasons For Pupil Failure," American School Board Journal, Vol. 117, (July, 1948), pp. 18-20.

[10]Ibid.

[11]C. J. Allison, "Characteristics of Students Who Failed Grade Seven in Edmonton Junior High Schools, "Unpublished M.Ed. Thesis, University of Alberta, pp. 81-88.

Two hundred twelve students randomly selected from the grade seven failures of that year comprised the sample population for the study. It was found that students tended to fail if they possessed one or more of the following characteristics:

1. They were overage on entering grade seven.
2. They had repeated one or more grades.
3. They had a history of difficulty in school.
4. In mental capacity they were generally found in the two lowest quartiles of the student population.

Low mental mental ability scores (below I.Q. = 95) were characteristic of over half the group. It was concluded that failure was closely associated with lack of mental ability. Further conclusions drawn from the study were as follows: (a) Failing students generally had a poor attitude towards school; (b) Passing students generally had better socio-economic backgrounds than did the failing students; (c) Boys were more likely to fail than girls.[12]

The Lieurance Study

Lieurance studied one hundred forty-four slow-learning grade seven students in order to discover reasons for failure.[13]

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[12] Ibid., pp. 81-83.

[13] Roy A. Lieurance, "To Pass or Not to Pass," The A.T.A. Magazine, Vol. 40: 10, (Edmonton, 1960, pp. 9-62.

He found that failure was more prevalent among students who had:

1. unhappy home conditions
2. personality clashes with teachers
3. poor health conditions (mental or physical)
4. few friends
5. failed to adjust satisfactorily to a new city or neighborhood.[14]

Lieurance found that many retarded readers had intelligence quotients of one hundred twenty or higher, thus indicating that failure was not associated exclusively with low mental ability. He found further that retardation tended to increase the dropout rate in school.

The Cameron Commission Study

This report defined failure as a mark below a 'B' in a high school subject.[15] A 'B' was defined as a mark of fifty to sixty-four inclusive. The report discussed failure rates for grades ten and eleven for the year 1955. The failure rate for grade ten was about twenty-four per cent while that for grade eleven was approximately the same.

In the Alberta school system external examinations are administered at the grade nine and grade twelve levels.

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[14] Ibid., p. 59.

[15] The Report of the Royal Commission on Education in Alberta, (Edmonton: The Department of Education, 1959), p. 497. (mimeographed).

In discussing the failure rates for Alberta the Commission Report had this to say:

> The failure rates in Alberta for grades X and XI are considerably lower than those for grades IX and XII, and they are considerably lower in the small schools than in the larger schools operating on standard instruction time.[16]

In 1955 provincial failure rates for grades ten and eleven in five major subjects were as shown in the accompanying table.[17] Table II, page 40. The table shows that students in grade ten found Mathematics 10 harder than any other subject thus their failure rate was correspondingly higher in that subject. Chabassol also found this was true for groups studied by him.[18]

Black's Study

A group of 10,709 grade nine students in Alberta schools wrote the grade nine final examinations in June, 1955, and enrolled in grade ten in the fall of that year.[19]

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[16]Ibid., p. 497.

[17]Ibid., p. 90.

[18]Chabassol, op. cit., pp. 175-176.

[19]Donald B. Black, "Distribution of Final Marks in Nine Course Areas in Alberta Senior High Schools," The Alberta Journal of Educational Research, VI: 3, (September, 1960), pp. 137-138.

TABLE II

PERCENTAGE FAILURE IN FIVE SUBJECT AREAS
IN GRADES TEN AND ELEVEN IN
ALBERTA SCHOOLS - 1955

Grade	Mathe-matics	Science	Language	Liter-ature	Social Studies
Ten	30	20	22	22	24
Eleven	24	23	25	22	25

Of the grade ten students who enrolled in the fall of 1955, 8,561 went on to enroll in grade eleven in the fall of 1956. The failure rates for both grade ten and eleven groups are shown in Table III, page 42.[20] Black listed failure rates for various sizes of schools. The rates in Table III were for 'large academic' high schools with eight or more teachers. Black's failure rate for Mathematics 10 corresponded well with that published for the same subject in the Cameron Commission Report. (See Table II). Failure rates for recent years in the subjects of grades ten and eleven are not readily available. Black recommended that "publication of the distribution of final marks for each course each year" would assist schools to work towards some degree of uniformity in the reporting of students' marks in the subjects of grades ten and eleven.[21]

Nyberg's Study

The sample population for Nyberg's study consisted of one hundred pairs of randomly selected students who had written the grade nine final examinations in Alberta schools

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[20] Ibid., pp. 137-140.

[21] Ibid., p. 152.

TABLE III

PERCENTAGE FAILURE IN FOUR SUBJECT AREAS
IN ALBERTA SCHOOLS, 1956-57

Grade	English Options	Social St. Options	Mathematics Options	Science Options
Ten	19.3	20.4	30	23.8
Eleven	23.2	20.7	23.7	23.7

in 1953.[22] The purpose of the study was to discover whether transciency had a significant effect on the achievement of students in grade nine. The pairs of students were matched on the basis of sex, age, achievement on mental ability tests, attendance, and the type of school where they took grade nine. Nyberg found no conclusive evidence that school achievement was seriously lowered by transciency. However, in Reading and Literature transciency appeared to have a slight beneficial effect. Nyberg concluded: "Suffice it to say that there is a possibility that transciency benefits a pupil in these fields."[23]

A Faculty of Education Study

This recently published monograph discussed the following characteristics of pupil personnel in Alberta schools from the following standpoints: (a) enrollments, (b) school achievement, (c) retention and dropout rates, (d) prediction of high school success, and (e) prediction of university success.[24] The study devoted considerable

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[22]Verner R. Nyberg, "A Study to Determine the Effect of Transciency on Grade Nine Departmental Examination Marks," The Alberta Journal of Educational Research, 11:3, (September, 1956) p. 152.

[23]Ibid., p. 155.

[24]D. B. Black, R. S. MacArthur, and J. G. Paterson, "Pupil Personnel in Alberta Secondary Schools," A Report Prepared by the Alberta Advisory Committee on Educational Research, (Edmonton: The University of Alberta), pp. 1-44.

attention to the topic of high school dropouts and summarized some of the factors found to be associated with it as follows:[25]

1. Being over-age.
2. Boys are more likely to drop out than girls.
3. Dropouts are often low achievers.
4. Students below average intelligence are more likely to drop out.
5. Students from homes of low socio-economic level are more likely to drop out than students from the better homes.
6. Students enrolled in vocational high school programs tend to drop out earlier than others.
7. Students tend to drop out who take little or no part in extra-curricular activities.
8. The effects of teacher-pupil attitudes, the size of the school, or the student's part-time job activities are not definitely known at present.

The Hohol Study

Hohol's investigation into the dropout problem reviewed the findings of several studies undertaken by educators in Canada and the United States.[26] Hohol found that dropout was closely associated with the following factors:

1. Poor economic status of the parents.
2. Over-ageness of the student.
3. Low intelligence as measured by intelligence tests.
4. Males have a greater tendency to leave school than females.

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[25] Ibid. pp. 9-17.

[26] A. E. Hohol, "Factors Associated With School Dropouts," The Alberta Journal of Educational Research, Vol. 1:1, (March, 1955), pp. 7-17.

5. Unstaisfactory home status of the child.
6. Poor attitudes, lack of initiative and self-confidence.
7. Lack of interest in the school's activities.
8. Negative attitudes of parents towards education.[27]

Hohol concluded that school-leaving was related to many factors often operating as a cluster. He found that the following factors were also somewhat related to dropout: (a) poor attendance, (b) poor reading ability, (c) subject failures, (d) lack of warm pupil-teacher relationships, (e) dislike for or lack of interest in a school course.[28]

The Hellerstein Report

Hellerstein found that many students fail in Junior High School because the school did not understand the needs of the individual student.[29] She reported a school experiment in which students entering Junior High were grouped as follows: (a) those who had failed a grade previously, (b) those who were new to the district, (c) those who had reached junior high by reason of automatic promotion. Of the one hundred twenty-three students in the experiment

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[27] Ibid., pp. 9-10.

[28] Ibid., p. 11-13.

[29] Rebecca Hellerstein, "The Fringe on the Bottom," The Clearing House, Vol. 20:7, March, 1946, pp. 387-391

twenty-three were returned during the year to regular classes.[30] Hellerstein blamed much school failure on: (a) continuous promotion, and (b) failure to understand the needs of children.

A Canadian Research Committee Study

This study, conducted on a Dominion of Canada-wide basis, set down some interesting conclusions with respect to factors related to school dropout.[31] The most important factor was lack of interest on the part of the student.[32] The study went on to draw the following conclusions:[33]

1. Schooling pays today in helping one to make a living.
2. Wages increase with schooling.
3. Schooling pays also in the enjoyment of living.
4. A completed high school education makes further education and training possible.
5. A person's employment potential is narrowed down when his schooling is incomplete or inadequate.
6. School failure, if it leads to dropout, is a serious matter for all students, but especially for those of average or better-than-average ability.

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[30] Ibid., p. 389.

[31] "Two Years After School," The Canadian Research Committee on Practical Education, (Toronto: March, 1951), pp. 32-35.

[32] Ibid., pp. 31-32

[33] Ibid., p. 12.

The Watts Study

Watts found that the following factors were closely associated with failure: (a) low intelligence, (b) family conflicts, (c) limited education of the parents, (d) transciency.[34] The students themselves said that family conflicts were often responsible for their school failure.

Miscellaneous Reports and Articles

A number of useful comments on the problem of failure have appeared from time to time in various reports and articles. Woellner reported that students often fail to do their best because of: (a) lack of study, (b) poor study habits, (c) lack of ambition and drive, (d) poor reading habits, and (e) not working up to capacity.[35] Hearn concluded that the selection of a high school program should depend on such matters as the following: (a) the student's junior high school marks, (b) mental ability percentile, (c) reading ability, and (d) the teacher's judgment.[36] Andrus reported that approximately twenty-five per cent of

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[34]Yvonne C. Watts, "A Study of High School Failure," The Bulletin of the National Association of Secondary School Principals, Vol. 43:249, pp. 69-75.

[35]R. C. Woellner, "Why Don't Students Do Their Best?" The School Review, Vol. 61, (September, 1953), pp. 325-326.

[36]Arthur C. Hearn, "Cutting Failures in Mathematics and Foreign Languages," Clearing House, Vol. 26:6, February, 1952, pp. 323-324.

a group of non-academic high school students were of normal or above-average intelligence.[37] This group of students, the counterpart to which is found in almost all schools, was the cause of great concern to school authorities. The parents were humiliated by the poor progress of the students; the students themselves seemed to be indifferent about it; and the teachers were faced with a sense of "chagrin, disappointment, and futility."[38]

Gragg reported that certain distinct characteristics distinguished high school graduates from dropouts.[39] Some of the characteristics were as follows: (a) mental ability, (b) interest in school work, (c) aptitudes and learning skills, (d) social adjustment, (e) emotional status, (f) physical health. Gragg reported further that the following factors were associated with dropout: (a) retardation, (b) sex, (c) verbal intelligence, (d) school achievement, (e) participation in extra-curricular activities, (f) broken homes, (g) socio-economic level of the home, (h) education

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[37]Ethel P. Andrus, "Operation Salvage," California Journal of Secondary Education, Vol. 31:1, January, 1956, pp. 57-61.

[38]Ibid., pp. 57-58.

[39]W. L. Gragg, "Some Factors That Distinguish High School Dropouts From High School Graduates," Occupations, Vol. 27, April, 1949, pp. 457-459.

of parents.[40]

IV. SUMMARY

It is difficult to pin high school failure down to any one factor because every individual case is different from the others. However, high on the list of factors that research has linked closely with failure were the following:

1. Lack of ability, interest, determination, and confidence.
2. Retardation resulting in a student being over-age.
3. Poor attitude towards subjects, teachers, and the school.
4. Unsatisfactory teacher attitudes.
5. Economic reasons such as a desire to earn money.
6. Feelings of inadequacy, futility, or inferiority.
7. Low socio-economic level of the home.
8. Having a history of earlier failure.
9. Lack of effort on the part of the student.
10. Poor mental or physical health.
11. Lack of ability in Reading.

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[40] W. L. Gragg, "Some Factors That Distinguish High School Dropouts From High School Graduates," Education Digest, Vol. 15, September, 1949, pp. 30-31.

Leonard[41] expressed the view that the vast amount of time and energy spent in naming factors associated with failure was partly wasted because little was being done to apply the findings in the really important task of preventing failure. He said:

> The general and careless use of the expression "lack of interest," "poor foundation," "laziness," "won't study," is of little help in interpreting the cause of failure; such phrases only confuse the issue . . . . The intimate personal problems, the home life, and the social and environmental aspects of child life are too important to be ignored. . . . All these factors contribute to failure and success and must be given the attention they merit."[42]

Many studies reviewed in this chapter have listed factor after factor related to failure, underachievement and dropout. Very little was said about the problem of preventing students from failing. One reason for such a lack in the research reviewed was that the purpose of the present study precluded a review of such literature. Nevertheless, Leonard's suggestion was much to the point and worthy of a good deal of serious thought on the part of all educators.

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[41] J. Paul Leonard, Developing the Secondary School Curriculum, New York: Rinehart and Company, Inc., 1946, pp. 209-244.

[42] Ibid., pp. 223-224.

CHAPTER III

EFFECT OF GRADE NINE ACHIEVEMENT

I. INTRODUCTION

The purpose of this chapter was to investigate the possibility that grade nine achievement, as shown by grade nine final examination results, had value as a predictor of success in grades ten and eleven. Much has been written about the predictive value of grade nine marks in Alberta, although findings have not been conclusive. For the present study three aspects of grade nine final marks were considered as follows:

1. The student's total stanine score.
2. The student's combined raw scores on the Ability Test.
3. The student's Reading raw score.

An attempt was made to show that, in each of the five subject areas, namely, Mathematics 10 and 20, Science 10 and 20, Language 10 and 20, Literature 10 and 20, and Social Studies 10 and 20, pass-fail groups differed on the basis of total stanines, ability, and reading. T-tests were employed to show more conclusively that passing and failing groups had differed significantly when compared on the basis of the three factors listed here.

The report of the Royal Commission on Education in Alberta examined a great deal of evidence in an attempt to estimate the value of grade nine examinations as predictors of high school success. The report stated that "achievement at the grade nine level must become a stronger factor in determining the courses in which a student is entitled to enroll in grade ten.[1] Black stated that:

> The grade nine Departmental Examination scores serve a double role in Alberta schools. They are used, first, to determine promotion to grade ten, and second, are of stated value for high school guidance programs as indicated on the back of the Grade IX Diploma as follows. . .[2]

The Department of Education takes the view that 'C' students, that is, students who achieved a 'C' in a subject on the grade nine final examinations, have only a fair chance of success in the next sequent course in grade ten.

The Royal Commission on Education had this to say about grade nine final examinations:

> Teachers and school administrators testify to the value of uniform Grade IX examinations in measuring achievement and assessing the future educational potential of the pupil and the nature of his program.[3]

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[1]The Report of the Royal Commission on Education, Department of Education, Edmonton, 1959, pp. 136-137.

[2]Donald B. Black, The Prediction of University Freshman Success Using Grade IX Departmental Examination Scores," The Alberta Journal of Educational Research, Vol. V:4, December, 1959, p. 229.

[3]The Report of the Royal Commission on Education, Department of Education, Edmonton, 1959, pp. 136-137. (mimeographed).

This chapter has reported data taken from the grade nine final examination results. Pass-fail groups in the five major subject areas were compared with respect to mean differences in total stanines, raw score Ability Test, and raw score on the Reading Test. In each subject pass groups in grades ten and eleven were grouped together and so were the fail groups. . . . From the data inferences were drawn as to the factors that distinguish passing from failing groups in grades ten and eleven.

II. COMPARISON OF GROUPS IN GRADE NINE COURSES

The total stanine score was found by summing the six stanine scores earned by the student on the grade nine final examinations in Mathematics, Science, Language, Literature, and Social Studies. The maximum score obtainable was fifty-four. Students who received no mark on the six subjects below a 'B' usually had a stanine count of at least thirty. In some schools in Alberta, students who had a stanine count of less than some particular figure, say thirty-two, were not allowed to enroll in a matriculation program except by special permission. In other high schools grade ten programming was partially dependent upon the student's ability percentile score and total stanine count.

Adding the verbal and quantitative raw scores of the

final Ability Test gave a combined raw score (ability). This combined raw score was treated statistically by means of a t-test in order to determine the significance of difference between passing and failing groups. The required data were taken directly from grade nine final examination results.

The Reading raw score was taken from the final examination results for the Reading Test. These data were also subjected to t-tests in order to determine whether pass-fail groups differed significantly.

Grade Nine Achievement of Grade Ten Students

Table IV, shown on page 55, summarizes mean scores for the grade ten students in three grade nine final examination scores.

Explanation of Table IV. The entries in the table represent mean scores. For example, the mean of the total stanines for the pass group in Mathematics 10 was 37.6, while that for the fail group was 29.4. The mean difference was 8.2. This difference in means was required in order to work out a t-test for significance of difference between pass-fail groups in Mathematics 10 when compared on the basis of total stanine scores.

In a similar manner the pass-fail groups in Mathematics 10 could be compared as to combined raw scores on

TABLE IV

SUMMARY FOR GRADE TEN STUDENTS SHOWING TOTAL STANINES, COMBINED RAW SCORE ABILITY, AND RAW SCORE READING 1960-61

	Total Stanines		Combined Raw Score Ability		Reading Raw Score	
Subject	Pass	Fail	Pass	Fail	Pass	Fail
Mathematics 10	37.6	29.4	82.5	70.0	53.5	48.7
Science 10	37.7	29.4	82.9	71.8	54.0	49.0
Language 10	35.8	25.4	78.2	66.0	52.6	45.8
Literature 10	36.0	25.0	79.3	65.8	52.8	45.0
Social Studies 10	37.2	25.4	79.3	65.6	52.6	46.2
Mean of Means	36.8	26.9	80.4	67.8	53.2	46.9

the Ability Tests. The difference was 10.5. The rest of the data for a t-test were available from the original data of each student's grade nine achievement. Three sample tests appear later in this chapter.

Students in the pass-fail groups in grade ten could be compared on the basis of difference of means for the Reading raw scores. In the succeeding sections of this chapter three tests for analysis of variance were calculated for the purpose of testing for significance of difference between pass-fail groups in the three following factors: (a) means of total stanines, (b) means of raw score ability, and (c) means of reading raw scores.

Grade Nine Total Stanines. Table V, shown on page 57, shows the data upon which the total stanine t-test was calculated.

The difference in means of the pass-fail groups was 10.4. The sum of squares for within groups deviations was:[4]

$$168940 - \frac{(4541)^2}{127} = 6572$$

$$21629 - \frac{(811)^2}{32} = 1075$$

The formula for t is then

$$t = \frac{10.4}{\sqrt{\frac{6527}{(127)(126)} + \frac{1075}{(32)(31)}}} = 8.5$$

[4]James E. Wert, Charles O. Neidt, and J. Stanley Ahmann, Statistical Methods in Educational and Psychological Research, (New York: Appleton-Century-Crofts, Inc., 1954), pp. 132-133.

TABLE V

TOTAL STANINE DATA FOR GRADE TEN LANGUAGE
PASSING AND FAILING GROUPS

1960-61

Achievement	N	$\sum X$	$\overline{X}$	$\sum X^2$	σ
Pass	127	4541	35.8	168940	7.17
Fail	32	811	25.4	21629	5.88
Total	159	5352		190569	

Using a one-tailed test with 126 degrees of freedom the value 8.5 was significant at the one per cent level of confidence. Pass-fail groups differed significantly in total stanine count. Students with total stanine counts of between twenty-five and thirty may expect to find difficulty achieving a 'B' in grade ten language courses.

Grade Nine Ability Test Combined Raw Score. The data for a t-test based on the means for pass-fail groups on the final ability test is shown in Table VI, page 59.

With reference to data in Table VI the difference in means of the passing and failing groups in combined raw score on the Ability Test was 15. The sum of squares for within groups deviations required for the t-test are as follows:

$$809730 - \frac{(10028)^2}{127} = 17913$$

$$144648 - \frac{(2110)^2}{32} = 5520$$

$$t = \frac{13}{\sqrt{\frac{17913}{(127)(126)} + \frac{5520}{(32)(31)}}} = 5.04$$

Allowing 126 degrees of freedom, this t-value is significant at the one percent level of confidence. Therefore it appeared that the passing and failing groups differed

TABLE VI

FINAL ABILITY TEST COMBINED RAW SCORE
FOR PASSING AND FAILING GROUPS
GRADE TEN LANGUAGE

1960-61

Achievement	N	$\sum X$	$\overline{X}$	$\sum x^2$
Pass	127	10028	79	809730
Fail	32	2110	66	144648
Total	159	12138		954378

significantly on the basis of the Ability Tests scores. The test used here was a one-tailed test of the difference between two groups of unequal size. To make the test more usable the two means, 79 and 66, could be converted to percentiles by referring to the Department of Education Final Examination results for 1960-61 for the Ability Test.

Grade Nine Reading Raw Scores. The Reading raw scores for the grade ten Language 10 group were processed and set up into tabular form similar to the forms of Tables V and VI. The Reading raw scores were from the 1960 final examinations. Data for the t-test is given in Table VII on page 61. The difference in the mean Reading raw scores is 6.8. The sum of squares for within groups deviations needed for the t-formula are

$$352615 - \frac{(6677)^2}{127} = 1573$$

$$69103 - \frac{(1464)^2}{32} = 2125$$

$$t = \frac{6.8}{\sqrt{\frac{1573}{(127)(126)} + \frac{2125}{(32)(31)}}} = 4.58$$

A t-value of 4.58 is significent at the one per cent level. Therefore, on the basis of grade nine Reading raw scores the grade ten passing and failing groups differed significantly at the one per cent level. Inferior Reading

TABLE VII

GRADE NINE READING RAW SCORES FOR
PASSING AND FAILING GROUPS
IN LANGUAGE TEN

Achievement	N	$\sum X$	$\bar{X}$	$\sum x^2$
Pass	127	6677	52.6	352615
Fail	32	1464	45.8	69103
Total	159	8141		421718

Ability would therefore seem to be a factor associated with failure in subjects in grade ten. Conversion of the mean Reading raw scores to percentiles or perhaps to standard scores might make them more meaningful for purposes of predicting probable success in grade ten and eleven academic subjects.

Comparison of Mathematics 10 Pass-Fail Groups

Pass-fail groups in Mathematics 10 were compared in the factor of total stanine count. It was thought that a t-test would provide further evidence to support the hypothesis that students with low stanine counts tend to fail in grade ten subjects, and especially in Mathematics and Science. The smallest mean difference (7.3) was selected because a significant test for difference of means based on the smallest mean difference meant that all other subsequent tests would likely be significant.

Comparison of Means for Total Stanine Count. The table shown on page 63, Table VIII, compared pass-fail groups of Mathematics 10.

A t-value of 5.4 using one hundred degrees of freedom is significant at the one per cent level of confidence. Therefore on the basis of total stanine count achieved on the grade nine final examinations, grade ten pass-fail groups differed significantly.

TABLE VIII

TOTAL STANINE DATA FOR GRADE TEN MATHEMATICS PASSING AND FAILING GROUPS

Achievement	N	$\sum X$	$\bar{X}$	$\sum X^2$
Pass	100	3759	37.1	148843
Fail	23	685	29.9	21215
Total	123	4444		170058

Sum of squares for within group deviations:

$$\text{Pass group} = 148843 - \frac{3759^2}{100} = 7442$$

$$\text{Fail group} = 21215 - \frac{685^2}{23} = 804$$

$$t = \frac{8.2}{\sqrt{\frac{7442}{(100)(99)} + \frac{804}{(23)(22)}}} = 5.4$$

Grade Eleven Students

The grade eleven student group was smaller than the grade ten group for three reasons: (a) the grade eleven population of the three county high schools was somewhat smaller than that for grade ten; (b) some students had dropped out during or at the end of their grade ten year which reduced the sample, (c) some grade eleven students had left the county at the end of grade eleven and could not be contacted by mail for lack of forwarding addresses.

The grade eleven pass-fail groups in each of the five subject areas were compared in performance on the grade nine final examinations. Table IX, on page 65, showed that pass-fail groups differed less significantly in reading ability than they did in total stanine count and mental ability scores. T-tests were used to analyze differences and determine confidence levels.[5]

The entries in Table IX represent the mean scores for pass-fail groups of the student population for the five subjects in grade eleven. The mean of each column was recorded as a 'mean of means' at the bottom of the table. The comparison of mean of means indicated in a general way that the pass-fail groups differed quite widely in

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[5]Wert et al. loc. cit.

TABLE IX

MEAN SCORES FOR PASS-FAIL GROUPS IN GRADE ELEVEN IN TOTAL STANINES, COMBINED RAW SCORE ABILITY, AND RAW SCORE READING

	Total Stanines		Combined Raw Score Ability		Reading Raw Score	
Subject	Pass	Fail	Pass	Fail	Pass	Fail
Mathematics 20	38.1	32.0	83.7	75.2	55.3	55.7
Science 20	38.8	32.3	85.8	74.5	55.8	53.7
Language 20	35.7	25.6	79.8	66.7	54.5	49.4
Literature 20	35.6	27.3	80.9	70.4	54.9	51.4
Social Studies 20	36.1	28.6	82.5	71.5	55.2	51.6
Mean of Means	36.9	29.2	82.5	71.6	55.1	52.4

total stanines, and combined raw score ability, but not in reading ability.

The small difference in reading ability as measured by the reading raw scores was explained by the fact that the grade eleven group was somewhat more selective than the grade ten group.

The difference in means in the reading raw scores for both Mathematics 20 and Science 20 was small compared with differences in other subjects as shown in Table IX. Apparently pass-fail groups in grade eleven were not much different in reading ability as measured by the final grade nine Reading Test. It was also possible that the Mathematics 20 and Science 20 classes, being made up mainly of matriculation students, contained fewer poor readers than were to be found in the other subject groups. Many students who took Language 20, Literature 20, and Social Studies 20 were in non-matriculation programs, therefore these subject groups were somewhat less selective than the Mathematics 20 and Science 20 classes.

Grade Nine Total Stanines. In the following table, Table X shown on page 67, the total stanine count for pass-fail groups in grade eleven mathematics was compared by means of a t-test based on mean difference.

TABLE X

TOTAL STANINE DATA FOR THE GRADE ELEVEN MATHEMATICS 20 STUDENTS

Achievement	N=	$\sum X$	$\bar{X}$	$\sum X^2$
Pass	73	2779	38.1	108689
Fail	24	768	32.0	25112
Total	97	3547		133801

The data for calculation of within groups deviation are as follows:

$$108689 - (2779)^2 = 2897$$

$$25112 - \frac{768^2}{24} = 536$$

$$t = \frac{6.1}{\sqrt{\frac{2897}{(73)(72)} + \frac{536}{(24)(23)}}} = 4.9$$

Using a one-tailed test for the difference between two means the above value of 4.9 was significant at the one per cent level of confidence. The mean difference between

pass-fail groups in Mathematics 20 on the basis of total stanines was the smallest of the five subject areas. This mean difference of 6.1 was exceeded in each of the other subject areas. It is a fairly safe assumption that t-tests for the other subject areas would have yielded significant differences at the one per cent level of confidence in each case.

Grade Nine Ability Test. The passing and failing groups in Mathematics 20 were compared as to combined raw scores on the grade nine final Ability Test. The table of data, Table XI on page 69, is shown. This t value is significant at the one percent level when a one-tailed test is used with degrees of freedom placed at 50 (about mid-point between 73 and 24). Therefore on the factor of ability as measured by the grade nine final examination the passing and failing groups in Mathematics 20 differed significantly.

Grade Nine Reading Achievement. The mean difference of the means in reading based on the reading raw scores for the Science 20 passing and failing groups was 2.1, a small difference. The data for the t-test appears in Table XII on page 70.

TABLE XI

ABILITY TEST DATA FOR GRADE ELEVEN
PASSING AND FAILING GROUPS
IN MATHEMATICS 20

Achievement	N	$\sum X$	$\bar{X}$	$\sum X^2$
Pass	73	6108	83.7	522434
Fail	24	1805	75.2	139175
Total	97	7913		661609

The mean deviations for within groups is shown below:

$$522434 - \frac{6108^2}{73} = 11370$$

$$139175 - \frac{1805^2}{24} = 3424$$

$$t = \frac{8.5}{\sqrt{\frac{11370}{(73)(72)} + \frac{3424}{(24)(23)}}} = 2.94$$

TABLE XII

GRADE NINE READING ACHIEVEMENT FOR PASSING AND FAILING GROUPS IN SCIENCE 20

Achievement	N	$\sum X$	$\bar{X}$	$\sum X^2$
Pass	72	4021	55.8	228122
Fail	29	1558	53.7	84434
Total	101	5579		312556

The mean deviations for within groups is shown below:

$$228122 - \frac{4021^2}{72} = 3561$$

$$84434 - \frac{1558^2}{29} = 732$$

$$t = \frac{2.1}{\sqrt{\frac{3561}{(72)(71)} + \frac{732}{(29)(28)}}} = 1.66$$

The t-value of 1.66 was significant at the five per cent level of confidence. It is probable that in the other subjects, with the exception of Mathematics 20, values for t larger than 1.66 would have been obtained if tests similar to the one above

had been worked out. Pass-fail groups therefore differed significantly in reading ability as measured by the grade nine final Reading Test.

Reading Ability of the Literature 20 Group. Data for a test of mean differences in reading ability between pass-fail groups in Literature 20 are shown in Table XIII, page 72. The t-value of 2.13 was significant at the five per cent level of confidence. From the results of the t-test it was concluded that grade eleven pass-fail groups differed significantly in reading ability as measured by the grade nine final Reading Test. Poor reading ability was a factor in failure for the students of the grade eleven questionnaire sample. Such a conclusion has been borne out by many other investigations.

III. SUMMARY OF FINDINGS

The t-tests used in this chapter were based on a model used by Wert, Neidt, and Ahmann.[4] The results of those tests that were calculated indicated that students with total stanine counts of approximately thirty might

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[4]James E. Wert, Charles O. Neidt, and J. Stanley Ahmann, Statistical Methods, New York: Appleton-Century-Crofts, Inc., 1954, pp. 132-133.

TABLE XIII

GRADE NINE READING ACHIEVEMENT FOR
PASSING AND FAILING GROUPS
IN LITERATURE 20

Achievement	N	$\sum X$	$\bar{X}$	$\sum X^2$
Pass	93	7528	54.9	625793
Fail	47	3310	51.4	235068
Total	140	10848		860861

The mean deviations for a t-test are shown below:

$$625793 - \frac{7528^2}{93} = 15355$$

$$235068 - \frac{3310^2}{47} = 1960$$

$$t = \frac{3.5}{\sqrt{\frac{15355}{(93)(92)} + \frac{1960}{(47)(46)}}} = 2.13$$

expect to encounter some difficulty in subjects of grade eleven. To be reasonably assured of a pass, with other factors held constant, a student should have had a total stanine count of thirty-five or more. A total stanine count of less than thirty seemed to indicate that the student would fail, especially in a matriculation program.

Tests showed that students low in mental ability as measured by the Grade Nine Ability Test tended to place in the failing groups. Although the t-tests showed fairly consistently that pass-fail groups differed in ability, no attempt was made in this study to establish intelligence quotient score to correspond to the pass-fail ability means shown in Tables IV and IX. By referring to the records of the Department of Education it might be possible to establish such a relationship.

In both grades, pass groups in all subject areas exceeded fail groups on the basis of comparison of group means for raw scores in reading. Unsatisfactory reading ability was therefore closely associated with failure in all subject areas. Mean differences in raw score reading were somewhat less for pass-fail groups in Mathematics 10 and 20 for two reasons: (a) these students were a more select group, consisting mainly of prospective matriculants, (b) some of the weak readers had dropped out at the end of

grades ten and nine, thus upgrading reading achievement for both pass and fail groups.

Table XIV below summarizes the probability that all grade ten pass-fail groups differed in the three factors recorded. (Table XIV on page 75).

The summary for significant differences between pass-fail groups in grade eleven is shown in Table XV, page 76.

The data in Tables XIV and XV, were partly based on an estimate of significance of difference. T-tests had been worked out for a sufficiently representative number of mean differences as shown in the data of Tables V, VI, VII, VIII, X, XI, XII, and XIII. It was concluded that if t-tests had been worked out for the complete data of Tables IV and IX the results would have corresponded with the two summaries in Tables XIV and XV.

The following conclusions were drawn from the investigation reported in this chapter:

1. Total stanines afford a rough guide for selection of suitable courses and programs in grade ten.

2. Students who have serious difficulty in reading probably should not attempt a matriculation program.

3. Failure in grades ten and eleven was closely associated with lack of ability, low stanine count, and poor reading ability.

TABLE XIV

SUMMARY FOR TEST OF DIFFERENCES
BETWEEN GROUP MEANS IN
GRADE TEN

Factor	Mathe-matics 10	Science 10	Lang-uage 10	Litera-ture 10	Social Studies 10
Stanines	S	S	S	S	S
Ability	S	S	S	S	S
Reading	S	S	S	S	S

S stands for significant difference between group means.

TABLE XV

SUMMARY FOR TEST OF DIFFERENCES
BETWEEN GROUP MEANS IN
GRADE ELEVEN

Achievement Factor	Mathe-matics 20	Science 20	Lang-uage 20	Liter-ature 20	Social Studies 20
Stanines	S	S	S	S	S
Ability	S	S	S	S	S
Reading	NS	S	S	S	S

S stands for Significant difference.
NS stands for Non-significant difference.

CHAPTER IV

THE RESULTS OF THE QUESTIONNAIRE

I. INTRODUCTION

It was the intention in this chapter to deal with the data recorded by the students on the questionnaire. The responses were recorded on the questionnaire in such a way that, after frequency counts and tabulations had been made, passing and failing groups in the five subject areas could be compared. From the comparisons, which were based on the responses to the various questionnaire items, inferences were drawn as to the association between failure and the factor represented by a particular item. In brief the questionnaire data were expected to reveal a number of factors upon which pass-fail groups differed. The size or significance of the differences was often used to point out the strength of association between a particular factor and failure.

One problem encountered in making an orderly presentation of the questionnaire results was that of grouping the response items so that the items within a group would be somewhat related to each other. This problem was solved, at least in part, by grouping the questionnaire items into five main divisions as follows:

1. Attitudes, interests, and confidence in one's ability.

2. Student ambition, determination to succeed in school, career plans, and aspirations.

3. Student study habits and repetition of early grades.

4. Grade entrance age, transciency, father's occupation, and student use of home aids for studying.

5. Student-perceived reasons for failure.

Treatment of Questionnaire Data

In order to compare pass-fail groups in grades ten and eleven, using response tabulations from the various items of the questionnaire, the following types of tests were used:

1. Chi-square tests for probability of difference between two groups, using contingency tables.[1] Response data for all items of Part One (excepting question FOUR), and the first seventeen items of Part Two were subjected to chi-square tests for significance of difference between pass-fail groups.

2. Simple tabulation of group means for both passing and failing students from which comparisons were made. For example, the mean entering age for grade ten Mathematics

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[1]James E. Wert, Charles O. Neidt, and J. Stanley Ahmann, Statistical Methods in Educational and Psychological Research, (New York: Appleton-Century-Crofts, Inc., 1954), pp. 150-155.

students was 185.2 months for failing students and 179.4 months for passing students. Failing students in Mathematics 10 were obviously 5.8 months older than passing students. Most of the response data of questions nineteen and twenty in Part Two and all of the response data from Part Three were treated in the above manner.

Applying the Chi-Square Test

The responses to each item of Part One (with the exception of question four) and the first seventeen items of Part Two were classified as either 'positive' or 'negative' depending on the answer to the question. Questions in Part One were followed by simple check blanks in which the student was asked to mark his choice of answer. Check marks in either of the two right-hand blanks were recorded as 'positive' responses, while check marks in the two left-hand blanks were 'negative' responses. An example is shown below for the question: "How much confidence did you have in your ability to complete grade twelve satisfactorily?

No Confidence	Slight Confidence	Considerable Confidence	A Great Deal of Confidence
☐	☐	☑	☐

The response to the question in the example was 'positive'. However, for items One to Seventeen in Part Two, a 'yes' or 'no' was required in each case. By summing the

'positive' and 'negative' or 'yes' and 'no' responses separately for pass-fail groups, a frequency table was made for each question. Thus for any question a four-cell contingency table was set up for the frequency responses to questions. Because there were five major subjects in the study, it followed that five chi-square tests were required for every question to which 'positive' or 'negative' and 'yes' or 'no' responses were made by the students. In order to show how the chi-square test was applied, an example of a frequency table is shown on page 81 (Table XVI) for responses to the following question: "How much confidence did you have in your ability to complete Science satisfactorily when you were in grade ten?"

II. ATTITUDES, INTEREST, AND CONFIDENCE

The students were asked to state in Part One of the questionnaire their answers to the following questions:

1. How well did you like Mathematics 10 or 20?
2. How well did you like the teacher of Mathematics 10 or 20?
3. How much use to you later on do you think Mathematics 10 or 20 would be?
4. How much confidence did you have in your ability to complete Mathematics 10 or 20 satisfactorily?

These same questions were asked for each of the four remaining subject areas: Science 10 or 20, Language 10 or 20, Literature 10 or 20, and Social Studies 10 or 20.

TABLE XVI

FREQUENCY OF RESPONSE FOR GRADE TEN AND ELEVEN PASS-FAIL GROUPS AS TO CONFIDENCE IN ABILITY TO PASS SCIENCE

Type of Response	Science 10		Science 20		Combined Group Scores	
	Pass	Fail	Pass	Fail	Pass	Fail
Positive	57	8	34	9	91	17
Negative	39	21	36	21	75	42
Totals	96	29	70	30	166	59

A chi-square test applied to combined group scores gave a value of 11.34. This value was significant at the one per cent level of confidence. Failure groups tended towards 'lack of confidence'.

For the four questions just quoted the results of the chi-square tests for combined groups were as follows:

TABLE XVII

DIFFERENCES BETWEEN PASS-FAIL GROUPS IN ATTITUDES AND CONFIDENCE

Questionnaire Item	Mathematics	Science	Language	Literature	Social Studies
Did you like the subject?	**	NS	**	**	**
Did you like the teacher?	**	NS	**	**	**
Did you think the subject was useful?	NS	NS	**	**	**
How confident were you about completing the subject?	**	**	**	**	**

Explanation of Table XVII:

** indicates significance of difference at the one per cent level of confidence.

* indicates significance of difference at the five per cent level of confidence.

NS means that groups did not differ significantly.

On the basis of Table XVII pass-fail groups differed most significantly in confidence and liking for the subject. Pass-fail groups in Science 10 and 20 did not differ in liking for the teacher. It was fairly clear that dislike for the subject and the teacher of the subject were quite closely related to failure. It is usually conceded by teachers that students achieve better if they like the subject as well as the teacher.

Factors Related to Attitudes, Interest, and Confidence

Several items from Part One of the questionnaire investigated student attitudes and interest still further. The following questions were asked:

1. Were you interested in completing grade twelve?
2. How satisfied with your high school program were you?
3. During the school year of 1960-61 what was your degree of concern for 'good scholarship'?
4. Did you feel that the high school program you were in during 1960-61 was the right one for you?
5. How effective was your home study program?
6. How confident were you in your ability to pass grade twelve when you should eventually take it?
7. Did you worry much about your health?
8. Did the choice of a proper career cause you worry?
9. Were you determined to finish high school?
10. Did you think you lacked ability to pass grade twelve?
11. Did you like going to school during 1960-61

Table XVIII shown on page 84 shows the significance of each item in the above list.

TABLE XVIII

DIFFERENCES BETWEEN PASS-FAIL GROUPS IN FACTORS RELATED TO INTEREST, CONFIDENCE, AND CONCERN FOR GOOD SCHOLARSHIP

Item of Response	Mathematics	Science	Language	Literature	Social Studies
1	*	**	**	**	**
2	**	**	*	NS	NS
3	NS	NS	**	**	**
4	**	**	NS	NS	NS
5	**	**	**	**	**
6	**	**	**	**	**
7	NS	NS	NS	NS	NS
8	NS	NS	NS	NS	NS
9	NS	NS	**	**	**
10	**	**	**	**	**
11	NS	NS	NS	*	*

** stands for significant difference at the one per cent level.

* stands for significant difference at the five per cent level.

NS stands for non-significant difference.

Failure and Lack of Confidence. The student was asked to state in two separate places on the questionnaire how he felt about his ability to complete grade twelve satisfactorily. Pass-fail groups in all subject areas differed at the one per cent level of confidence. The test results ruled out the likelihood that such differences as existed were due to sampling fluctuations. Confidence was therefore considered to be a very important factor in success in school subjects. Students who lacked confidence tended to fall into the failure groups.

Table XVIII showed that all pass-fail groups in all subject areas differed significantly in the factor of confidence. Items six and ten in Table XVIII both tested the same factor and in both cases all groups differed at the one per cent level. Table XVII agreed with Table XVIII in that all pass-fail groups in both tables differed in confidence to pass grade twelve.

Failure and Lack of Interest. Table XVIII, item number one, tested pass-fail groups in the factor of interest with respect to completing grade twelve satisfactorily. All groups differed significantly. Lack of determination was associated with failure in the Language, Literature, and Social Studies groups but not in the fields of Mathematics and Science. This was indicated by item number nine in Table XVIII. Lack of interest and determination were closely associated according to the results shown in both Tables XVII

and XVIII, therefore it was concluded that both factors are closely associated with high school failure.

Worry and Failure. Only two items asked the student to comment on worry, and tests based on the data for these two items showed non-significant differences between pass-fail groups for all subject areas. There were only two questions that dealt with the factor of worry, therefore there was insufficient evidence for a definite conclusion, but on the strength of the two items, (number 7 and 8, Table XVIII) worry was not a serious factor in high school failure.

Concern for Good Scholarship. There was no significant difference between pass-fail groups in Mathematics and Science in the factor of 'concern' for good scholarship. The students in these two groups actually consisted of the same students, most of whom were taking a matriculation program. In the three subjects, Language, Literature, and Social Studies, pass-fail groups differed significantly in concern for good scholarship. These latter groups were made up of many students in non-matriculation programs which fact may have had a bearing on their attitudes towards good scholarship. Those students who showed little or no concern tended to fail. The results for questions three and nine in Table XVIII were almost identical. Both dealt with 'concern' and 'determination', so it was concluded that students who

lacked these two important characteristics tended to fail in high school.

Failure and the Choice of Program. Important differences between pass-fail groups in Mathematics and Science were noted in the factor of 'choice of high school program'. There was evidence in Table XVIII to indicate that students who were not satisfied with their high school program tended to fail in Mathematics and Science. Perhaps those students who failed in Mathematics and Science were dissatisfied because of their lack of success, and consequently said that they were in the wrong program. Students in Language, Literature and Social Studies did not differ in the factor of satisfaction with the high school course. The Literature and Social Studies groups were not significantly different in their satisfaction with the type of program they were taking in 1960-61.

Factors Related to Parents' Interests and Attitudes

The questionnaire asked several questions with respect to the home and the interest and attitude of parents. Opinions expressed by the students may not have been accurate estimations of the true feelings, attitudes, and interests of their parents. However, it was thought that student progress may have been affected more by what the student thought parents' feelings and attitudes were, than by the actual feelings that parents had.

Parental factors, as shown by the data in Table XIX, were not as closely related to failure as one would suppose. The questions upon which Table XIX was based appear in the list below.

The questions that accompany the test data in Table XIX are shown here in abbreviated form:

1. How well did you get along with your parents (or the family with which you stayed) in 1960-61?
2. What were the home study conditions like in your home (or wherever you stayed in 1960-61?
3. How much encouragement did your parents (or guardians) give you during 1960-61?
4. How much interest in your post-high-school education did your parents (or guardians) show in 1960-61?
5. How much agreement on the choice of the proper program for you in 1960-61 existed between your parents?
6. How satisfied were your parents with your home study efforts and use of home study time?
7. How much interest did your parents show towards the school, its program, and general operation?
8. Did you live with your parents during 1960-61?
9. Were both your parents living during 1960-61?
10. If both parents were living during 1960-61 were they living together?
11. Could your parents finance your post-high-school training and education?

The responses to these questions were summarized for all pass-fail groups in each subject area and two-by-two tables were made based on the pass-fail frequencies, Table XIX follows on page 89.

TABLE XIX

DIFFERENCES BETWEEN PASS-FAIL GROUPS
IN HOME AND PARENTAL FACTORS

Item of Response	Mathe-matics	Science	Language	Litera-ture	Social Studies
1	NS	NS	NS	NS	NS
2	NS	NS	NS	NS	NS
3	NS	NS	NS	NS	NS
4	NS	NS	*	**	**
5	NS	*	**	**	NS
6	**	**	**	**	**
7	NS	NS	NS	NS	NS
8	NS	NS	*	NS	NS
9	NS	NS	NS	NS	NS
10	NS	NS	*	NS	NS
11	NS	NS	NS	NS	NS

** means significant difference at one per cent level.

* means significant difference at the five per cent level.

NS mean non-significant difference.

Parents and Home Study. Item number six, Table XIX was item number twenty-four, Part Two, in the questionnaire. Pass-fail groups in all subject areas were significantly different in the factor of parental satisfaction with the student's home study habits. This meant that parents, in general, were more satisfied with the efforts of the more successful students. Parental dissatisfaction went with failure.

Parental Approval of the Student's High School Program. There was some evidence that when parents disagreed about the proper program for their child the student tended to achieve poorly. Agreement between parents was a factor in success just as parental approval of the student's home study efforts went with success in high school subjects.

Non-Significant Factors. Table XIX showed that the following factors of school experience related to the home were not closely associated with failure: (a) unsatisfactory home conditions for study, (b) getting along poorly with parents, (c) lack of parental encouragement and interest, (d) decease of one parent, (e) decease of both parents, (f) lack of financial ability of the parents to provide post-high-school training or education. Adverse home factors, although not necessarily conducive to success in school, were not found to be a serious factor in failure.

III. STUDENT ASPIRATIONS AND RELATED FACTORS

A number of questionnaire items asked the student to estimate and record his interest in extra-curricular activities, career plans, part-time jobs, and the like. These questions, occurring in parts One and Two of the questionnaire, provided responses that could be treated statistically by means of a chi-square test, The questions appear in the list below:

1. If there had been final Departmental Examinations at the end of June, 1961, would you have worked harder?
2. Were you interested in post-high-schooleducation?
3. How well did the work of the previous year prepare you for the work in school during 1960-61?
4. How popular with other students were you?
5. How much interest did you show in extra-curricular activities?
6. Did you want to quit school at the end of June, 1961?
7. Did you have a part-time job during 1960-61 while you were still going to school?
8. Did you intend to take a full-time job upon completing your high school courses?
9. Did you talk with your counselor during 1960-61?
10. Did you change your program pattern during 1960-61?
11. Were you planning on learning a trade after leaving high school?
12. Did you plan to go to a university upon completing grade twelve?
13. Had you ever been out of Alberta?

Table XX summarizes the results of chi-square tests that were worked out for each item in the list on the previous page:

TABLE XX

SIGNIFICANCE OF CHI-SQUARE TESTS WITH RESPECT TO STUDENT ASPIRATIONS AND RELATED FACTORS

Item of Response	Mathematics	Science	Language	Literature	Social Studies
1	NS	**	NS	NS	NS
2	**	*	**	**	**
3	NS	NS	NS	NS	NS
4	NS	NS	NS	NS	NS
5	*	NS	**	NS	*
6	NS	NS	**	**	*
7	NS	NS	NS	NS	NS
8	**	**	**	**	**
9	NS	NS	NS	NS	NS
10	NS	**	**	**	*
11	*	**	**	**	**
12	**	*	**	**	**
13	NS	NS	*	*	*

** means significant difference at the one per cent level of confidence.

* means significant difference at the five per cent level of confidence.

NS means that no significant difference between means for pass-fail group frequencies of response.

Non-Significant Items

Certain items test in Table XX showed that factors based on those items were related as much to success as they were to failure. They were therefore classified as non-significant, as shown in the following summary:

1. Popularity with one's classmates.
2. Receiving counselling from teacher-counselors.
3. Student's estimate of the 'goodness' of preparation received in school the previous year.
4. Having a part-time job during the year.
5. The motivational effect of having to write final Department of Education examinations at the end of the year.

Failing students did not feel that they were unpopular with their more successful classmates. Failing students received guidance in the same degree as passing students. There was very little indication that final departmental examination would have a motivating effect on grade ten and eleven students. Only in the Science pass-fail group was a significant difference found in this factor. There was no evidence that part-time jobs were detrimental to student success or progress.

Partially Significant Items

Extra-curricular activities seemed to be partially beneficial and conducive to success in school. Students who had travelled outside of Alberta succeeded better in school although this conclusion was based on significant differences

at the five per cent level in only three subject areas. On the basis of travel outside of Alberta Mathematics and Science students did not differ.

Significant Items

The questions in which pass-fail groups showed the greatest differences were as follows:

1. Were you interested in post-high-school education?
2. Did you intend to get a full-time permanent job after leaving high school?
3. Did you plan to begin trade training or an apprenticeship after leaving high school?
4. Did you plan to attend university after completing high school?

The fact that pass-fail groups in four or five subject areas differed significantly indicated that passing students were more than likely planning on some form of higher education, such as attendance at a university. Failing students were about evenly divided as to trade training or other form of post-high-school work, while seventy-three per cent of the passing group stated definitely that they did not plan on trade training. In the original data fifty-seven per cent of the pass group stated that they planned on university training whereas only forty per cent of the fail group planned on attending university. These two latter deductions were based on data from the questionnaire results for the Science 10 and 20 group. In the same groups sixty-seven per cent of the passing group planned not to take up permanent employment

upon leaving high school, while thirty-three per cent did so plan. In the fail group fifty-three per cent planned to go right to work after high school. Failing students planned on getting jobs or taking training other than university training.

IV. STUDY HABITS AND GRADE REPETITION

In this section of the present chapter questions nineteen and twenty of Part Two of the questionnaire were investigated. It was fairly evident from an examination of Tables XXI to XXIII, inclusive, that pass-fail groups differed on the factors of study habits and grade repetition.

Weekly Hours of Home Study

Table XXI recorded the hours of home study per week. the table entries are grand means calculated by finding the means of the means for pass-fail groups in the five subject areas. (Table XXI shown on next page)

Two facts stand out clearly from the table:

1. Grade eleven students spent slightly more time in home study than grade ten students did.

2. Failing students in both grades spent somewhat less time on home study than the passing students did.

It should be stated also that the mean difference between pass-fail groups in grade ten was double the difference

TABLE XXI

TOTAL HOURS OF HOME STUDY PER WEEK
GRADES TEN AND ELEVEN, 1960-61

	Mean Number of Hours	
Achievement	Grade ten	Grade Eleven
Pass	6.3	6.4
Fail	5.1	5.8

between pass-fail groups in grade eleven. Failing students did less home study than passing students and in the two failing groups the grade eleven students did more home study than the grade tens. Perhaps the demands of the grade eleven courses prompted even the failures to do more home study.

Repetition of Grades Prior to High School Entrance

Table XXII, page 98, showing data for grade ten, showed a higher incidence of failure among the failing students than among the successful students.

Table XXII indicated that students who had failed one or more grades prior to entering grade ten tended to fail in high school. The Mathematics and Science groups were quite different from the other three subject areas because grade repetition for failing students was less than half the rate for Language, Literature, and Social Studies. Here again, grade repetition was less among the matriculation group than among the non-matriculation group.

Retardation has often been given as a factor associated with failure and dropout.[1] The students subject groups containing those pupils taking the general and vocational programs had much higher percentage of repetition among the failing groups than among passing groups.

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[1]D. B. Black, R. S. MacArthur, and J. G. Paterson, "Pupil Personnel in Alberta Secondary Schools," A monograph published by The Alberta Advisory Committee on Educational Research, (Edmonton: The University of Alberta, 1961), pp. 9-10.

TABLE XXII

PERCENTAGES OF PASSING AND FAILING GROUPS
IN GRADE TEN WHO HAD REPEATED
ONE OR MORE GRADES PRIOR
TO JUNE, 1960

Achievement	Mathematics 10	Science 10	Language 10	Literature 10	Social Studies 10
Pass	8%	6.3%	7.9%	8%	10.6%
Fail	13%	16.7%	40.6%	38%	33.3%

Table XXIII shows the percentage grade repetition for grade eleven pass-fail groups in the five subjects.

TABLE XXIII

PERCENTAGES OF PASSING AND FAILING GROUPS IN GRADE ELEVEN WHO HAD REPEATED ONE OR MORE GRADES PRIOR TO JUNE, 1960

Achievement	Mathematics 20	Science 20	Language 20	Literature 20	Social Studies 20
Pass	1.2%	2.9%	6.6%	4.3%	5.6%
Fail	12.5%	7.1%	18.8%	19.6%	22.6%

Table XXIII showed that grade eleven students had a lesser amount of grade repetition than grade ten students. The percentage of repetition among grade ten failing students in Language, Literature, and Social Studies was approximately double the corresponding rate for grade eleven failing groups. Dropout at the end of grade ten and the tendency for grade eleven students to be more selective and smaller in numbers,

probably accounted for the smaller grade repetition percentages in grade eleven. Otherwise Tables XXII and XXIII corresponded rather well.

Comments on Section Four. Two factors associated with failure in high school were discussed in this section, namely: transciency and time spent on home study. Grade ten and eleven passing students spent about the same number of hours per week in home study, but there was evidence that grade eleven failing students spent more time than did the grade ten students. Of course the validity of these conclusions must be predicated on the reliability and accuracy of the students' responses.

The data of Tables XXII and XXIII presented evidence that the incidence of grade repetition prior to grade nine was much higher among failing than among passing students. Furthermore, the incidence of earlier grade repetition appeared to be much greater among the Language, Literature, and Social Studies groups than among the Mathematics and Science groups. The explanation may be that the two latter groups were somewhat more selective

V. GRADE ENTRANCE AGE, TRANSCIENCY, FATHER'S OCCUPATION, AND HOME STUDY AIDS

This section of the chapter reported Part Three of the questionnaire. Tabulated data are used for recording

mean differences between pass-fail groups in their responses to the following questionnaire items:

1. Age in months at the commencement of the grade.
2. Transciency prior to entering grade ten.
3. Father's or guardian's occupation.
4. Use made by the student of home study aids.

Age on Entering a Grade in High School

Tables XXIV and XXV recorded mean entrance ages in months for grade ten and eleven students. No rigorous statistical treatment of the data was attempted because it was evident in the tabulated data that failing students were generally older than passing students.

Age on Entering Grade Ten. Table XXIV on page 102, shows entrance ages for pass-fail groups in five subjects expressed as group means. Pass students were approximately 7.5 months younger than failing students. Students who fail in grade ten, so one could conclude, tend to be older than students who succeed. Over-ageness has often been given as a characteristic of both failures and dropouts. The data in Table XXIV appeared to substantiate this fact.

The mean starting age for failing students in Mathematics and Science was about 185 months while that for failing students in the three remaining subjects was

TABLE XXIV

MEAN ENTRANCE AGES IN MONTHS
FOR GRADE TEN STUDENTS
SEPTEMBER 1, 1960

Achievement	Mathematics 10	Science 10	Language 10	Literature 10	Social Studies 10	Grand Mean
Pass	179.4	180.5	177.6	180.5	180.9	179.9
Fail	185.2	185	189	188.5	189.3	187.4

approximately 188.9 months. Greater retardation was observed among the group containing the non-matriculating students. This was to be expected.

Age on Entering Grade Eleven. Table XXV, shown on page 104, presents the data for grade eleven and is set up in the same form as Table XXIV. It was expected that differentials between pass-fail groups in grade eleven starting ages would be smaller than for the grade ten groups because of dropouts during and at the end of grade ten. Failing students in Matriculation, represented by those students in Mathematics and Science, were about the same starting age as students in the Language, Literature, and Social Studies groups. The difference noted in grade ten was not evident in the grade eleven group.

The difference in the grand means for grade eleven students on the factor of grade starting ages was 3.2 months. That for grade ten was 7.5 months. Otherwise both Tables XXIV and XXV showed that successful students in both grades were younger than the failing students.

TABLE XXV

MEAN ENTRANCE AGES FOR GRADE
ELEVEN STUDENTS
SEPTEMBER 1, 1960

Achievement	Mathematics 20	Science 20	Language 20	Literature 20	Social St. 20	Grand Mean
Pass	194	194	195.2	195	194.6	194.6
Fail	198.5	196	197.8	197.4	199.3	197.8

Transciency and Failure

Tables XXVI and XXVII recorded data for the grade ten and eleven groups with respect to transciency prior to entering grade ten. Table XXVI is shown below:

TABLE XXVI

TRANSCIENCY OF GRADE TEN PASS-FAIL GROUPS AS MEASURED BY THE NUMBER OF COMMUNITIES LIVED IN PRIOR TO GRADE TEN ENTRANCE

1960

Achievement	Mathematics 10	Science 10	Language 10	Literature 10	Social St. 10	Grand Mean
Pass	2.3	3.0	2.2	2.7	2.8	2.6
Fail	4.5	2.7	2.0	2.8	2.7	2.94

Transciency and Grade Ten Achievement. Table XXVI showed that the differences in transciency between pass-fail groups were quite small and probably non-significant. The comparison of grand means indicated that failing students had moved about from community to community more than had the passing students.

Transciency did not seem to affect a student's achievement seriously.

Transciency and Grade Eleven Achievement. An examination of Table XXVII led to conclusions similar to those for grade ten.

TABLE XXVII

TRANSCIENCY OF GRADE ELEVEN PASS-FAIL GROUPS AS MEASURED BY THE NUMBER OF COMMUNITIES LIVED IN PRIOR TO GRADE ELEVEN ENTRANCE 1960

Achievement	Mathematics 20	Science 20	Language 20	Literature 20	Social Studies 20	Grand Mean
Pass	2.3	2.4	3.4	2.6	2.4	2.6
Fail	2.7	2.3	3.0	2.2	3.0	2.6

Father's Occupation and Student Achievement

Students were asked to state their father's occupation or that of their guardian. From these data the responses were sorted into five categories as follows: (a) farmers,

(b) professions, (c) business, skilled, and management, (d) trades, semi-skilled, unskilled, and labor, (e) others. Tables XXVIII and XXIX showed the tabulated data for grades ten and eleven based on the subject groups for Mathematics and Social Studies. The Social Studies group would include all matriculation students as part of the total group, whereas the Mathematics group was a straight matriculation classification. Table XXVIII appears below for the Mathematics group representing matriculation students.

Father's Occupation and Matriculation Achievement. This student group consisted of those who took Mathematics 10 and 20 in 1960-61 in Strathcona County Schools.

TABLE XXVIII

FATHER'S OCCUPATION IN RELATION TO ACHIEVEMENT IN THE MATHEMATICS 10 AND 20 GROUPS

Achievement	Father's Occupational category = Frequencies					Totals
Code	1	2	3	4	5	
Pass	59	11	50	45	6	171
Fail	15	3	13	15	1	47
Totals	74	14	63	60	7	218

Code: 1..Farmers; 2..Professions; 3..Business; Skilled, and Managers; 4..Semi-skilled and Labor; 5..Others.

Table XXIX compared Social Studies pass-fail groups on the basis of father's occupation. In the first four occupational categories the highest failure rate was recorded among students who came from the farms. This was inconsistent with the data of Table XXVIII which indicated a fairly uniform failure rate among the first four categories of the Mathematics 10 and 20 group. See Table XXX on the next page.

TABLE XXIX

FATHER'S OCCUPATION IN RELATION TO ACHIEVEMENT IN THE SOCIAL STUDIES 10 AND 20 PASS-FAIL GROUPS

Achievement	Frequencies Within the Five Occupational categories					Totals
Code	1	2	3	4	5	
Pass	83	15	69	59	6	232
Fail	28	2	11	17	6	64
Totals	111	17	80	76	12	296

Code: 1..Farmers; 2..Professional; 3..Business, Skilled, and Managers; 4..Semi-skilled and Labor; 5..Others.

TABLE XXX

COMPARISON OF FAILURE RATES BY CATEGORIES FROM DATA IN TABLES XXVIII AND XXIX

	Percentage of Failure from Tables XXVIII and XXIX					
Category	1	2	3	4	5	
Table XXVIII	20	21.4	20.6	25	14.3	
Table XXIX	25	11.8	13.8	22.4	50	

Categories: The same categories are used in Table XXX as are used in Table XXVIII, page 107, and Table XXIX, page 108.

Student Use of Home Aids to Study

The responses to questions four and five from Part Three of the questionnaire were added to make a single score for each student who answered the question. By recording the responses for passing and failing groups for each subject the data for Table XXXI, below, and Table XXXII on page 111, was assembled:

TABLE XXXI

SUMMARY OF THE NUMBER OF HOME STUDY AIDS USED BY STUDENTS, GRADE TEN QUESTIONNAIRE GROUP

1960-61

Achievement Group	Mathe-matics 10	Science 10	Langu-age 10	Litera-ture 10	Social St.10	Mean
Pass	4.6	4.6	4.7	4.7	4.9	4.7
Fail	5.3	5.0	4.5	4.6	4.0	4.7

There was no significant difference between passing and failing groups on the factor of the use of study aids in the home. The passing group used approximately five (4.7) types of study aids in their homes. The failing group used the same number.

The data used in Table XXXI were based on estimations made by the students, therefore subject to error. However, the consistency evident among the five pass-fail subject groups lends some credibility to the estimations and makes their use for drawing inferences permissible.

Table XXXII below summarized data for grade eleven on the factor of student use of study aids in the home.

TABLE XXXII

SUMMARY OF THE NUMBER OF HOME STUDY AIDS USED BY STUDENTS, GRADE ELEVEN QUESTIONNAIRE GROUP

1960-61

Achievement Group	Mathematics 20	Science 20	Language 20	Literature 20	Social St. 20	Mean
Pass	5.6	5.6	5.4	5.5	5.6	5.5
Fail	5.9	5.8	5.4	5.3	5.1	5.5

An examination of Tables XXXI and XXXII makes quite clear the following characteristics of the passing and failing groups on the factor of 'home aids' to study:

1. Both groups appeared to make about the same use of home study aids, although the grade eleven group surpassed the grade ten group in this area.

2. There is a marked consistency about the two tables. The means for the grade ten group were the same and so were those for the grade eleven group.

Failure doesn't appear to be associated with student indifference to the various books, magazines, and encyclopedias that may be provided in the home.

V. SELF-PERCEIVED REASONS FOR FAILURE

One of the questions in Part One asked the student to give his personal reasons for failing subjects. It was thought that it might be possible to determine which reasons for failure were important, in the eyes of the student at least, and also to use the results as a check against some conclusions reached with respect to failure. The summaries list reasons that other questionnaire items had already revealed. Table XXXIII lists self-perceived reasons for failure for the grade ten student group: (Table XXXIII is shown on the next page.)

TABLE XXXIII

REASONS FOR FAILURE VOLUNTEERED
BY STUDENTS, GRADE TEN
QUESTIONNAIRE GROUP

1. Lack of effort.
2. Lack of interest in the subject.
3. Lack of background knowledge and ability in the subject.
4. Dislike for the subject.
5. Dislike for the teacher of the subject.
6. The teacher was to blame for the student's failure.
7. The subject was unnecessary or somewhat useless.
8. The student blamed himself.
9. The student had a poor attitude.
10. Lack of skills such as knowledge of the vocabulary of the subject.

Self-Perceived Reason for Failure - Grade Eleven.

A summarization of reasons for failure in grade eleven is shown here. It is a somewhat more extensive summary partly because the grade eleven students volunteered more information than did the grade ten students. A greater percentage of the grade eleven group answered the questions. The table is shown on page 115.

VI. SUMMARY

The purpose of the summary is to list those factors that are associated with failure and those that appear to list the significant factors in the order of significance and importance based on the results of tests and comparisons.

Significant Factors

The following factors appear to be closely associated with failure in both grade ten and eleven:

1. Dislike for the subject and the teacher of the subject.

2. Lack of confidence in ability to succeed in the subject, the grade, or in subsequent grades.

3. Lack of interest in school, in school subjects, in completing high school, in post-high-school education, and in good scholarship.

TABLE XXXIV

REASONS FOR FAILURE VOLUNTEERED
BY STUDENTS, GRADE ELEVEN
QUESTIONNAIRE GROUP

1. Lack of effort, work, and study.
2. Lack of interest in the subject.
3. Lack of ability in the subject.
4. Lack of background knowledge in the subject.
5. Dislike for the subject.
6. Dislike for the teacher of the subject.
7. The teacher was to blame for the student's failure.
8. The subject was rather unnecessary and useless.
9. The subject was boring.
10. The student was to blame for his own failure.
11. The student couldn't write well when under pressure.
12. The student was not able to review effectively.
13. The student thought that the teacher disliked him.
14. The student felt himself to be immature.
15. The student lacked confidence.

4. Poor study habits and lack of effort.

5. Parental dissatisfaction with the student's efforts.

6. Lack of definite career plans or objectives.

7. Changing the type of high school program to another type for various reasons.

8. Desire to quit school during the year.

9. Having a history of repetition of grades.

10. Being over-age.

11. Lack of background knowledge in the subject.

12. Lack of parental interest in the student's post-high-school education and training.

13. Lack of agreement between parents as to the proper high school course the student ought to begin in grade ten.

14. Lack of satisfaction with the high school program.

15. Lack of determination to complete high school.

16. Lack of appreciation of the usefulness of the subject in which the student experienced failure.

No one factor operated independently of the others but rather contributed to failure as one of a number of factors operating concurrently.

Non-Significant Factors

It was expected that some of the factors examined in this study would prove to be non-significant. However, a non-significant factor need not be unimportant, for statistical significance alone was no final proof that an item was necessarily important. It was just as important to know which factors were non-significant as to know those that were significant. A study of both significant and non-significant factors could lead to some useful conclusions as to which factors were more important than others.

Factors that did not seem to be closely associated with high school failure were as follows:

1. Worry about health or choice of a career objective.
2. Home conditions for study and getting along with parents.
3. Parental encouragement.
4. Parents' ability to finance further education.
5. Home problems involving divorce and separation.
6. Living with people other than one's parents.
7. The fact that there are no final examinations at the end of grades ten and eleven of external type.
8. Preparation received in school the previous year.
9. Popularity with one's classmates.

10. Having a part-time job during the school year.

11. Having an opportunity to talk with a school counselor during the year.

12. Having a record of transciency.

13. Father's occupation.

14. Use of home study aids.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions arising from this study are presented in two main parts as follows: (a) those based on the relationship between grade nine achievement and failure in subjects of grades ten and eleven; (b) those drawn from data taken from the student questionnaire. These conclusions are limited in their application to high school systems having grade ten and eleven populations with characteristics similar to those found in the County of Strathcona.

I. FAILURE IN RELATION TO GRADE NINE ACHIEVEMENT

Pass-fail groups in grades ten and eleven were compared as to: (1) total stanine count; (2) combined ability raw scores; and (3) reading raw scores. They differed significantly in all three factors.

Differences of means between pass-fail groups in the five subject areas were recorded in Tables IV and IX. T-tests were performed in enough cases (using the smallest mean differences) to warrent drawing the conclusion that if further tests had been performed they would have resulted in significant differences without exception. The following conclusions are therefore considered valid:

1. Failure in grades ten and eleven is associated with low total stanine scores on the grade nine final examinations.

2. Failure in grades ten and eleven is associated with lack of ability in reading.

3. Failure in grades ten and eleven is associated with lack of ability as indicated by raw scores on grade nine final ability tests.

4. A total stanine count of thirty or less indicates that a student is not likely to succeed in a matriculation program in high school.

5. A total stanine count of between thirty and thirty-seven is an indication that the student has a fair chance of succeeding in a matriculation program.

6. Differences between pass-fail groups in grade ten as to raw score reading were greater than for the same factor in grade eleven. (See Tables IV and IX). One explanation may be that many poor readers drop out during or at the end of grade ten, thus tending to narrow the differences in reading scores at the grade eleven level.

7. A comparison of grand means in Tables IV and IX revealed that the general scholastic level of the grade eleven students exceeded that of grade ten in total stanine count, raw score ability and reading ability. The differences between grade ten and eleven fail groups were greater

than for the pass groups probably because the grade eleven population was more select by reason of dropouts in grade ten and at the end of grade ten.

II. CONCLUSIONS DRAWN FROM THE QUESTIONNAIRE AS TO FACTORS ASSOCIATED WITH FAILURE

Many factors were examined by means of the questionnaire and the degree of association with failure varied from highly significant to non-significant. The summary of factors studied is arranged in three parts as follows: (a) very significant; (b) partially significant; and (c) non-significant.

Factors Associated Significantly With Failure

There was evidence that the following factors were strongly associated with failure in grades ten and eleven:

1. Dislike for a failed subject.
2. Dislike for a teacher who taught a failed subject.
3. A negative or indifferent attitude.
4. Lack of confidence in one's ability to pass a subject and complete a high school program successfully.
5. Lack of interest in school and in school subjects.
6. Lack of effective home study plans and efforts.
7. Parental dissatisfaction with the student's home study and general application to work.

8. Lack of parental interest in the student's choice of the proper high school program for the grade ten.

9. Lack of interest in: (a) post-high-school education or training; (b) succesful completion of grade twelve.

10. Having to change from one type of high school program to another during the school year.

11. Lack of background knowledge in the work of the previous year.

12. Being over-age for the grade and having repeated one or more grades prior to entering grade ten.

13. Planning to take up a trade instead of going on to an institution of higher learning.

Factors Somewhat Related to Failure

Several factors were found to be closely associated with failure in three or four of the subject areas included in this study. Such factors were thought to have considerable relationship to failure, but the degree of association was weak in one or two subject areas. There was evidence that the following factors were somewhat related to failure in grades ten and eleven:

1. Lack of parental interest in the student's post-high-school education and training.

2. Student dissatisfaction with the high school program.

3. Student indifference to 'good scholarship'.

4. Desire of the student to quit during the school year.

5. Lack of travel outside the Province of Alberta.

6. Lack of interest in extra-curricular activities.

7. Lack of determination to qualify for a high school diploma.

8. Lack of student satisfaction with the school program undertaken in the fall of 1960.

9. Father's occupation for students in non-matriculation programs.

Factors Unrelated to Failure

A factor was considered to be not related to failure if: (a) comparison of pass-fail groups showed significant differences in only one or two subject areas, or (b) the evidence provided by the available data was inconclusive. The following factors showed little or no association with failure, or in other words, they did not appear to predispose a student to failure in grades ten and eleven:

1. Worry about health or choice of a career objective.

2. Unsatisfactory conditions for home study.

3. Failure to get along with parents.

4. Inability of the parents to finance further education.

5. Home problems involving separation or decease of the parents.

6. Living away from home during the school year.

7. The lack of alleged motivational effect of final departmental examinations at the end of grades ten and eleven.

8. Student estimation of the quality of preparation received for a subject in the previous school year.

9. Lack of popularity with one's classmates.

10. Having a part-time job during the school year.

11. Lack of counselling during the school year, 1960-61.

12. Having a record of transciency prior to grade ten.

13. Father's occupation. Pass-fail groups in a matriculation program showed little or no difference when compared on this factor.

14. The use of various aids to study found in the home.

15. Lack of harmony in the home.

16. Student attitude towards home study conditions.

17. Dislike for the school, as distinct from lack of interest in school.

Self-Perceived Reasons for Failure

Question Four from Part One of the questionnaire provided the student an opportunity to disclose confidentially,

his personal reasons for failure in one or more subject areas. The reasons listed below are arranged in the order of their frequency in the questionnaires:

1. Failure was due to lack of work or effort,

2. Lack of interest was strongly associated with failure.

3. Lack of ability and background knowledge in a subject were strongly associated with failure.

4. Dislike for both the subject and the teacher was strongly associated with failure in that subject.

5. Students often blamed the teacher for his failure.

6. Failure was often associated with negative feelings about the subject. A feeling that the subject was somewhat useless or unnecessary was considered a 'negative' feeling.

7. The student blamed himself for his failure.

8. Poor attitudes were strongly associated with failure.

9. The subject was thought boring.

10. Lack of skills, such as knowlefge of the vocabulary of a subject, led to failure.

11. Inability to write well when under the pressure of examinations was associated with failure.

12. The inability to review effectively was thought by many students to be associated with their failure.

13. The student thought that the teacher disliked him.

14. The student felt that his failure was associated with feelings of insecurity due to his immaturity.

15. Lack of confidence was stated by many students to be a strong factor in failure.

III. DISCUSSION AND GENERAL CONCLUSIONS

The conclusions listed in Sections One and Two were stated rather briefly. Some elaboration of certain points may be helpful for the information of high school teachers, guidance personnel, and school administrators. As far as possible this section presents discussion and comment. At times it may border on recommendations because the two items --discussion of implications for programming and recommendations--are closely related.

Failure--Prelude to Dropout

Although this is not a dropout study, it should be said that students who exhibit failure factors such as have been discussed in this chapter are potential dropouts. Gragg[1] stated that school leavers can be identified in junior

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[1]W. L. Gragg, "School Leavers: They Can be Spotted in Junior High." Clearing House, Vol. 25:1, October, 1950, pp. 7274.

high school. However, identification alone is of little value unless the school makes some attempt to offer programs in which the students can hope to achieve a measure of success. Students might be less likely to drop out early if they could enroll in programs in grade ten that match their interests, abilities, and aptitudes.

Schools can not save all students, but many students are being lost in senior high school in the sense that the school has not offered them the type of course program they need for fuller development of their potential abilities. Individual differences among students imply that students can not all fit the same program in high school. A pupil who works in a program that does not answer his needs and suit his abilities often works spasmodically and achieves below his potential. Diversification of high school programs might be a partial answer to the challenge now facing the high schools of Alberta.

Implications of the Study for High School Programming

Perhaps the most important problem faced by the student at the end of grade nine is the selection of the most suitable grade ten program. Choosing such a program should be done with the three basic factors clearly in mind: (a) school achievement based on the work of the first nine

grades and especially on the results of the grade nine final examinations; (b) the student's ability, interests, and aptitudes; (c) the possibilities for choice offered by the school.

If the school is small and the types of program quite limited, the student may have little choice but to take many subjects for which his past achievement and his ability do not fit him. Small high schools employing fewer than five teachers can not hope to offer much more than a matriculation program with perhaps some general and commercial subjects in addition. In such schools, students find that the grade ten courses in Mathematics 10 and Science 10 are too demanding and often fail such courses. Where possible, such schools should try to offer non-matriculants Mathematics 11 or 12 instead of the more demanding Mathematics 10. Students whose grade nine Mathematics and Science marks were 'C' or less are not likely to succeed in a matriculation program and therefore should be encouraged to take courses more suited to their abilities and interests. However, the teaching loads in small high schools make it almost impossible to offer the non-matriculant such courses.

The Small High School. Students who plan to go to a university or technical school need a good foundation in

both Mathematics and Science. Alberta's two institutes of technology offer many fine courses for technicians and technologists but almost invariably the prerequisites include grade eleven Mathematics and Science with marks of 'B' or better. Therefore small high schools might meet the needs of students who wish to go to university or to technical institutes by placing them in matriculation programs. However, those students who fail courses at the grade ten level must either repeat the courses or change to a general program or make some other adjustment. The crux of the matter is then simply that the student who fails Mathematics 10 and Science 10 may not be able to change his program from matriculation to non-matriculation.

Students with mediocre grade nine achievement, who do not plan to attend a university or technical institute, might be counselled to take their high school in four years rather than three. Extra courses, where such are offered, might then be taken so as to enable the student to earn one hundred credits or more despite possible failure in one or more courses. Here again the limited offerings of small high schools make such programming rather difficult, if not impossible. It seems unrealistic to place a student in a matriculation program when his total stanine count of less than thirty clearly indicates that he will likely fail in such a program.

The Large High School. Students who failed subjects of the matriculation program differed significantly from passing students in such factors as: attitude, interest, confidence, career ambitions, determination, ability, grade nine achievement, reading ability, effort, satisfaction with their program, desire to quit and get a job, participation in extra-curricular activities, early repetition of grades, and time spent on studies. All these factors should be taken into account when a student is directed into a school program at the commencement of grade ten. However, it would be a monumental task to have reliable measures of all these factors in such form that they could be interpreted accurately. Nevertheless, the student's choice of a grade ten program should take some of the more pertinent factors into account.

Large schools offer several types of programs including the following: (a) Matriculation, three years; (b) Matriculation, four years; (c) Business Education; (d) Technical Education; (e) Combined Matriculation-Business Education; (f) the General Education program. The choice of the right program presents to both school authorities and students a task of major importance. How can the conclusions drawn from the present study assist the principals and counselors in directing students into suitable grade ten programs? A consideration of several factors might provide a partial answer to this question.

Ability, Grade Nine Achievement and Career Aspirations. Students, whose total stanine count on the grade nine final examination is less than thirty, should be discouraged from taking a matriculation program. When the stanine total is between thirty and thirty-six, the student who wishes to take a matriculation program should probably be allowed to do so, but, should be informed that he might encounter serious difficulty and frustration. Such students should be counselled individually so that other important factors such as mental ability and work habits can be taken into account. The total stanine count should be used only in conjunction with other reliable data related to the student's school record and potential ability.

Weak students in grade nine often achieve below the stanine 'five' level in certain subjects. They later fail in sequent grade ten courses in which they probably should not have enrolled in the first place. Grade ten students in matriculation subjects tend to maintain the same relative positions they had while in grade nine. A Calgary study stated that far too little use was being made of grade nine results for the prediction of success or failure in high school courses.[2] A report in a recent

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[2]D. B. Black, R. S. MacArthur, and J. G. Paterson, "Pupil Personnel in Alberta Secondary Schools," Monographs in Education, No. 6, (The University of Alberta, Edmonton, 1961), pp. 19-24.

University of Alberta publication pointed out that a critical intelligence quotient score of 105, as measured in grade nine by a Henmon-Nelson Mental Ability test, might be used for accepting students into a grade ten matriculation program.[3] The present study has not attempted to set up such a critical score but perhaps the idea has merit. It is the considered opinion of many educators that prediction of high school success in a matriculation program should be based on a combination of factors such as the following: (a) grade nine achievement; (b) mental ability; (c) job aspirations and post-high-school plans; (d) interest, effort, and drive; (e) mental and physical health.

Counselling at Commencement of Grade Ten. There is no serious problem in directing and counselling students who wish to take non-matriculation programs as long as the student's parents do not insist that a matriculation program is the right one for their child. In the latter case interviews may serve to help parents understand that high school programs other than matriculation are worthy of consideration. Many students select the matriculation route because they are unaware of the implications of

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[3] D. B. Black, R. S. MacArthur, and J. G. Paterson, "Pupil Personnel in Alberta Secondary Schools," Monographs in Education, No. 6, Edmonton: The University of Alberta, 1961, p. 24.

such a choice. They may have been unduly influenced by their parents, friends, school chums, or by the somewhat popular notion that the matriculation program has a lot more prestige than other programs. The possibilities for success in high school are, for many students, contingent on getting sound counselling early enough to do some good.

Interest and Effort. Students who show little interest or effort in grade nine should not be encouraged to take a matriculation program. This is all the more pertinent if the student's grade nine final examinations produced unsatisfactory results. The matriculation program is quite demanding in view of the minimum marks and average required, so that students who are marginal in grade nine performance should receive special counselling about program choice.

Students who are interested in proceeding to training in a technological institute or in an apprenticeship program should be made acquainted with the merits of the various high school programs. Students capable of success in a general high school program might wish to enter an apprenticeship and learn a trade. Those who wish to become technologists might be encouraged to acquire a good background in Mathematics and Science in high school. Students who are poor in these two subjects should not plan to attend a technological institute.

Grade Ten--A Crucial Year. Students with better-than-average grade nine achievement should be able to select any high school program they wish. If the student's past achievement and his mental ability and interest place him in the average or slightly-under-average group, his success in a matriculation program would be doubtful. Such students should be encouraged to make the most of their grade ten year in order to remain in the program of their choice. Those who show during grade ten that certain subjects are too difficult or who find that their interests have changed to other career areas may be allowed to change to a more suitable program at the commencement of grade eleven. The advent of the vocational high school makes it possible for the non-matriculating student to select a vocational area for which he is suited by reason of ability and interest. He may then proceed towards a high school diploma through such a route. It may become more and more imperative that the schools improve their skills and techniques for selecting students for the vocational high schools now about to open here and there about Alberta. A much more thorough job of assessing student potential from the standpoint of interest, ability, and aptitudes may have to be done if those students who should go to a vocational high school are identified early enough.

This study has shown that many failing students, and some passing students also, lack interest in their studies and the proper attitudes towards school and education. It might be that wrong program selection in grade ten is partly responsible.

IV. RECOMMENDATIONS

Many of the problems administrators and teachers have to deal with during the grade ten year have to do with those students who were allowed to enroll in a program to which they were not suited. Experience has shown that parents often take the view that the matriculation program is the 'best' one from the standpoint of prestige and its acceptability to prospective employers. Students who are unduly influenced by such reasoning may insist on taking a matriculation program even though they know that they are likely to run into difficulty in certain subject areas.

Proper guidance should be available to students in all high schools in order to help channel students into programs for which they are prepared and to which they are suited by reason of preparation, mental capacity, and interest. The following recommendations seem useful at this point:

1. All high schools with student populations of two hundred or more should offer qualified guidance services to assist the principal and staff in each school to reduce failure rates by helping students choose suitable high school programs.

2. High schools should expand their services to students in the field of both educational and vocational counselling.

3. The school should seek greater co-operation with parents in order to acquaint them with the consequences of unwise and unrealistic program choices.

4. Greater emphasis should be placed on those parts of the grade nine guidance course that deal with the relationship between success in junior and senior high school.

5. Although the student's total stanine count is a fair indication of his probable success in grade ten, it should not be taken as the main measuring rod for selection of students for matriculation programs. It is recommended that the total stanine count be used in conjunction with the best information available with respect to the student's: (a) mental capacity, (b) reading ability, (c) career aspirations, (d) interest as indicated by sound counselling procedures, (e) work habits and determination, (f) special limitations related to mental and physical health.

6. Teaching and guidance personnel should find suitable ways of building up confidence and determination in the student.

7. Students should be encouraged to take part in extra-curricular activities and to seek some part-time job experience while they are in senior high school.

8. Students in grades eight and nine who have very definite, realistic, career ambitions, but who are somewhat deficient in one or two vital subject areas, should be given additional work or special assistance to help them upgrade their marks in those subjects. In this way their chances of success in senior high school might be greatly enhanced.

9. Students whose grade nine final examination marks are borderline and whose mental capacity, reading ability and total stanine count indicate that the student might encounter serious difficulty in a matriculation program should probably be spotted in grade nine and given special assistance in planning for a suitable grade ten program. Such students should receive follow-up guidance in the light of their grade nine marks.

10. Greater importance might be attached to the fact that grade ten students are often as unrealistic in their career choices as they are in choosing a high school program. It is recommended that steps be taken to inform

parents prior to grade ten with respect to those pertinent points to keep in mind when helping their boys and girls select suitable career choices and high school programs.

11. School principals, counselors, and teachers work together to devise suitable ways of developing the student's ability to conduct independent study and research.

12. Although undesirable attitudes may often accompany adolescent development in grades ten and eleven, nevertheless school staffs should work together to promote healthy student attitudes towards schools, school subjects, and school activities.

V. FURTHER SUGGESTED RESEARCH

Several studies might be undertaken to further examine the area of school achievement in grades ten and eleven as it is affected by various aspects of school experience.

1. A study of the grade nine final examination marks as predictors of success in non-matriculation programs in grade ten.

2. A study to determine the best methods for setting up suitable selection criteria for prospective vocational high school students.

3. Since lack of interest was often given as a factor closely associated with failure in grades ten and eleven, research should be undertaken to explore the field of instructional methods in high school with the purpose in mind to devise ways of making high school courses more appealing, interesting, and useful.

4. Further research should be undertaken to determine the degree to which extra-curricular activities help or hinder student progress in senior high school.

5. A study should be undertaken to determine the effect on student achievement in grades ten and eleven of final Department of Education examinations, at the end of both grade ten and eleven.

6. A study might be undertaken to investigate the effect on high school achievement of reading courses in junior high school, designed to improve reading skills in the subject fields.

7. A study might be undertaken to determine the relationship between student estimate of teacher effectiveness in instruction and methodology, and the student's success in senior high school.

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A P P E N D I C E S

A P P E N D I X A

TABLE XXXV

COMPARISON OF FAILURE RATES FOR QUESTIONNAIRE SAMPLE POPULATION OF 1960-61 WITH FAILURE RATES FOR STRATHCONA COUNTY No. 20, FOR 1959-60 AND 1960-61

		County of Strathcona No. 20		Questionnaire Sample
		1959-60	1960-61	1960-61
Mathematics	10	19	19.2	18.2
Mathematics	20	22	30	26.2
Science	10	38.2	25.3	23.8
Science	20	20	31	29.4
Language	10	22.6	24.6	20
Language	20	31.6	29.2	23.2
Literature	10	39.2	26	21.3
Literature	20	30.2	38.5	33.4
Social Studies	10	28.3	23.2	20.9
Social Studies	20	27.5	27.6	22.4

Note:

It is likely that many students who did not return the Questionnaire were failing students because the failure rates for the Questionnaire sample were slightly below the County of Strathcona rates in three subject areas.

If a larger number of failures had returned the Questionnaire chi-square tests worked out for pass-fail differences would have been more significant than ever.

TABLE XXXVI

COMPARISON OF PASS-FAIL GROUPS IN GRADE TEN ENROLLMENT IN MATRICULATION PROGRAMS, STRATHCONA COUNTY, 1960-61

Achievement Classification	N=	Matriculation	Non-Matriculation
Pass	127	103	24
Fail	32	12	20
Totals	159	115	44

Pass-fail groups were established on the achievement in Language 10.

Pass-fail groups were compared on the factor of matriculation versus non-matriculation. Using the data in Table XXXVI $X^2 = 24.1$. This value was highly significant at the one per cent level of confidence. Therefore failure was considered more prevalent in the non-matriculation group than in the matriculation group.

TABLE XXXVII

PERCENTAGE DISTRIBUTION OF STUDENTS BY GRADE AND SEX QUESTIONNAIRE SAMPLE-GRADES TEN AND ELEVEN STRATHCONA COUNTY 1960-61

Sex	Grade Ten	Per Cent of Total	Grade Eleven	Per Cent of Total
Boys	74	46.5	75	52.8
Girls	85	53.5	67	47.2
Totals	159	100	142	100
Per Cent of Grand Total	52.8		47.2	

The grand total for the whole grade ten and eleven population was 301. Of this total 52.8 per cent were grade ten students. Grade eleven students comprised the remaining 47.2 per cent.

TABLE XXXVIII

RESULTS OF CHI-SQUARE TESTS FOR QUESTIONNAIRE, PARTS ONE AND TWO

Item No.	Math-matics	Science	Lang-uage	Liter-ature	Social Studies
	10 - 20	10 - 20	10 - 20	10 - 20	10 - 20
1.	**	NS	**	**	**
2.	**	NS	**	*	**
3.	NS	NS	**	**	**
4.	No tests applied to answers to this item				
5.	*	**	**	**	**
6.	NS	**	NS	NS	NS
7.	**	*	**	**	**
8.	**	**	*	NS	NS
9.	NS	NS	**	**	**
10.	**	**	**	**	**
11.	NS	NS	NS	NS	NS
12.	NS	NS	NS	NS	NS
13.	*	NS	**	NS	*
14.	**	**	NS	NS	NS
15.	**	**	**	**	**
16.	NS	NS	NS	NS	NS
17.	**	**	**	**	**
18.	NS	NS	NS	NS	NS
19.	NS	NS	NS	NS	NS
20.	NS	NS	NS	NS	NS
21.	NS	NS	NS	NS	**
22.	NS	NS	*	**	**
23.	NS	*	**	**	NS
24.	**	**	**	**	**
25.	NS	NS	NS	NS	NS

NS = Non-significant.

* = 5 per cent level.

** refers to the one per cent level.

TABLE XXXVIII (continued)

PART TWO

Item No.	Math-matics 10 - 20	Science 10-20	Lang-uage 10 - 20	Literature 10 - 20	Social Studies 10 - 20
1.	NS	NS	NS	NS	NS
2.	NS	NS	NS	*	*
3.	NS	NS	**	**	*
4.	NS	NS	NS	NS	NS
5.	NS	NS	**	**	**
6.	NS	NS	*	NS	NS
7.	NS	NS	NS	NS	NS
8.	NS	NS	*	NS	NS
9.	NS	NS	NS	NS	NS
10.	NS	NS	NS	NS	*
11.	**	**	**	**	**
12.	**	**	**	**	**
13.	NS	NS	NS	NS	NS
14.	NS	**	**	**	*
15.	*	**	**	**	**
16.	**	*	**	**	**
17.	NS	NS	*	*	*

NS = Non-significant.

* = 5 per cent level.

** refers to the one per cent level.

A P P E N D I X B

8015 - 71 Avenue.,
Edmonton, Alberta
May 10, 1962.

Dear Student:

Before you examine the enclosed questionnaire please read this letter. You can render me valuable assistance by helping to provide information about your school courses and progress during the school year 1960-61. At the time you were in grade_____.

In order to assist me I have provided you with a questionnaire that you should be able to complete without much expenditure of time and energy. The questionnaire is in three parts. Just read the directions carefully and you should have no difficulty.

When you have completed the questionnaire, turn it in to your principal or Guidance Counselor if you are still attending Salisbury High School, Fort Saskatchewan, or Ardrossan High Schools. If you are no longer in one of these schools place the questionnaire in the self-addressed, stamped envelope provided for your convenience and then mail it as soon as possible.

The answers will be shown to no one but myself, and your particular questionnaire will not be made public. In other words, the information you give me is CONFIDENTIAL and I shall make only such use of it as will not reveal the answers of any particular student.

I wish to thank you in advance for any assistance you can give me. Good luck with your questionnaire.

Sincerely Yours,

I. B. Mallett,
Counselor,
Salisbury High School.

8015 - 71 Avenue,
Edmonton, Alberta,
June 14, 1962.

Dear _____

According to our school records

_____

took grade nine and wrote the final examinations at your school. You may have the grade nine final examinations results for the above student on file. If you have, I should appreciate it if you would let me have the following information with respect to the above student:

(1) Total sum of stanines _____

(2) Raw scores on the Ability Test for

Verbal _____ and Quantitative _____

(3) Raw score on the Reading Test _____

(4) Reading stanine score _____

Your co-operation is much appreciated.

Thank you very much.

Very truly yours,

I. B. Mallett,
Counselor,
Salisbury High School.

8015 - 71 Avenue,
Edmonton, Alberta,
July 4, 1962.

Dear _____

I am working on a study dealing with the reasons why students have difficulty achieving satisfactory marks in certain school subjects. A satisfactory mark, for my purposes, is a 'B' or better.

In order to collect information about student achievement I am enclosing a questionnaire that contains a number of questions related to your grade _____ year in Strathcona County No. 20. I am asking you to assist me by answering the questionnaire and sending it back to me in the self-addressed stamped envelope enclosed. It shouldn't take a great deal of your time and I shall appreciate your help.

The information you give me is confidential and will not be shown to teachers or anyone else. The answers of no individual students will be exposed so that you can feel free to express your ideas and feelings accurately.

I am interested, primarily, in knowing how you felt about certain features of your school experience during the school year of 1960-61.

May I take this opportunity to thank you for your kind assistance and co-operation.

Good luck with the questionnaire.

Very truly yours,

I. B. Mallett,
Salisbury High School.

STUDENT QUESTIONNAIRE GRADE 11

INSTRUCTIONS

1. In Part One record your answers by using check marks (/) except in question 4.
2. In PART TWO answer 'yes' or 'no' by placing check marks in the appropriate spaces. Otherwise answer as indicated by the question.
3. In PART THREE supply brief, accurate answers in the spaces provided.

THANK YOU FOR YOUR VERY KIND CO-OPERATION

PART ONE: ATTITUDE TOWARDS SCHOOL SUBJECTS

When you were taking the following subjects in grade 11 how did you feel about each one of them? Indicate your attitude below:

	Strong Dislike	Mild Dislike	Liked Somewhat	Liked a Great Deal
Mathematics 20				
Science 20				
Language 20				
Literature 20				
Social Studies 20				

2. ATTITUDE TOWARDS TEACHERS OF THESE SUBJECTS

How did you feel towards the teachers of the following subjects?

	Strong Dislike	Mild Dislike	Liked Somewhat	Liked a Great Deal
Mathematics 20				
Science 20				
Language 20				
Literature 20				
Social Studies 20				

3. USEFULNESS OF HIGH SUBJECTS

You were probably told when in grade 11 that the following subjects would be useful to you later on in life. How useful did you feel these subjects would be later on?

	Practically Useless	Fairly Useless	Fairly Useful	Very Useful
Mathematics 20				
Science 20				
Language 20				
Literature 20				
Social Studies 20				

4. If you received a 'B' or better in each subject below you may disregard this question. Otherwise state in words why you found difficult those subjects that are underlined below.

Mathematics 20 _____

_____

Science 20 _____

_____

Language 20 _____

_____

Literature 20 _____

Social Studies 20 _____

5. ATTITUDE TOWARDS COMPLETING GRADE TWELVE

How interested were you in getting a high school diploma? Try to recall how you felt about this last year in grade 11. Check one only.

Definitely Not Interested	Somewhat Disinterested	Fairly Interested	Very Much Interested
☐	☐	☐	☐

6. EFFECT OF NO DEPARTMENTAL EXAMINATION IN GRADE ELEVEN ON YOUR ATTITUDE TOWARDS THE SUBJECTS YOU TOOK LAST YEAR.

If you had had to write Departmental Final examinations in the five subjects listed in questions ONE how much harder would you have worked last year in grade eleven?

A Great Deal Harder	Quite a Bit Harder	Very Little Harder	No Harder
☐	☐	☐	☐

7. EDUCATION BEYOND HIGH SCHOOL

When you were in grade eleven how much interest did you have with respect to continuing your education or training beyond high school?

No Interest	Very Little Interest	Considerable Interest	A Great Deal of Interest
☐	☐	☐	☐

8. UNDERLINE THE KIND OF HIGH SCHOOL PATTERN YOU STARTED ON IN GRADE TEN.

(a) Matriculation Business Technical General

NOW UNDERLINE BELOW THE KIND OF HIGH SCHOOL PROGRAM YOU STARTED ON IN GRADE ELEVEN.

(b) Matriculation Business Technical General

NOW UNDERLINE THE KIND OF HIGH SCHOOL PROGRAM YOU ARE TAKING NOW.

(c) Matriculation Business Rechnical General

NOW: BY THE END OF YOUR GRADE ELEVEN YEAR HOW DID YOU FEEL WITH RESPECT TO THE TYPE OF HIGH SCHOOL PROGRAM YOU STARTED WITH IN GRADE ELEVEN?

Very Much Dissatisfied	Somewhat Dissatisfied	Fairly Satisfied	Very Much Satisfied
☐	☐	☐	☐

9. ATTITUDE TOWARDS GOOD SCHOLARSHIP IN GRADE ELEVEN

How much concern did you feel when in grade 11 with respect to making 'B's or better in each of the five subjects listed in question 1?

No Concern	Very Little Concern	Considerable Concern	A Great Deal of Concern
☐	☐	☐	☐

10. CONFIDENCE IN ABILITY TO COMPLETE COURSES SATISFACTORILY

In order to complete a course satisfactorily you need a 'B' or better. How much confidence did you have in your ability to complete the following courses satisfactorily in grade 11?

	No Confidence	Slight Confidence	Considerable Confidence	A Great Deal Confidence
Mathematics 20				
Science 20				
Language 20				
Literature 20				
Social Studies 20				

11. ATTITUDE TOWARDS PREPARATION RECEIVED IN GRADE TEN

How well did the work you did in grade ten prepare you for the work in grade eleven in the five subjects listed in question 1?

Very Poorly	Fairly Poorly	Fairly Well	Very Well
☐	☐	☐	☐

12. POPULARITY WITH THE STUDENTS OF GRADE ELEVEN

When you were in grade eleven how popular did you feel yourself to be with the rest of the students with your grade?

Very unpopular ☐ Fairly unpopular ☐ Fairly popular ☐ Very popular ☐

13. ATTITUDE TOWARDS EXTRA-CURRICULAR ACTIVITIES

How much interest did you take in school-clubs, the Student's Union, and other forms of extra-curricular activities sponsored by the school?

No Interest ☐ Occasional Interest ☐ Considerable Interest ☐ A Great Deal of Interest ☐

14. SATISFACTION WITH THE GRADE ELEVEN PROGRAM YOU TOOK

During your grade eleven year how often did you have the feeling that the course pattern you were following was the wrong one for you?

Very Often ☐ Fairly often ☐ Seldom ☐ Never ☐

15. ATTITUDE TOWARDS INDEPENDENT STUDY AND HOME STUDY

Most successful students study independently. They carry out a systematic program of home studies apart from teacher-assigned work. How good was your home study program in grade eleven as you recall it now?

Very Ineffective ☐ Somewhat Ineffective ☐ Fairly Effective ☐ Very Effective ☐

16. RELATIONSHIPS WITH ADULTS IN YOUR HOME

In general, how did you get along with your parents (or guardians)?

Very Poorly ☐ Fairly Poorly ☐ Fairly Well ☐ Very Well ☐

17. CONFIDENCE IN YOUR ABILITY TO COMPLETE GRADE XII SATISFACTORILY.

When you were in grade 11 how much confidence did you have in your ability to complete grade 12 studies satisfactorily?

No Confidence ☐ Slight Confidence ☐ Considerable Confidence ☐ A Great Deal of Confidence ☐

18. ATTITUDE TOWARDS HOME STUDY CONDITIONS

In your home how satisfactory were the conditions under which you studied during your grade 11 year?

Very Unsatisfactory	Rather Unsatisfactory	Fairly Satisfactory	Very Satisfactory
☐	☐	☐	☐

19. WORRY OR UNDUE CONCERN OVER HEALTH IN GRADE ELEVEN

While you were in grade 11 to what extent was your mind occupied with worry or undue concern about your health?

Constantly	Very Often	Seldom	Never
☐	☐	☐	☐

20. WORRY ABOUT CHOOSING THE RIGHT CAREER

How much unnecessary worrying did you do with respect to the problem of choosing the right career or job after completing high school?

A Great Deal	Quite a Bit	Very Little	None
☐	☐	☐	☐

21. PARENTAL ATTITUDE (OR ATTITUDE OF YOUR GUARDIANS OR FOSTER-PARENTS)

How much encouragement to succeed in high school did you receive from your parents (or guardians if you weren't living with parents)?

None	Very Little	Quite a Lot	A Great Deal
☐	☐	☐	☐

22. PARENTAL INTEREST IN YOUR POST-HIGH-SCHOOL EDUCATION

How much interest was shown by your parents (or guardians) in your post-high-school plans for further education or training?

None	Very Little	Considerable	A Great Deal
☐	☐	☐	☐

23. PARENTAL AGREEMENT AS TO THE RIGHT HIGH SCHOOL PROGRAM

What was the degree of agreement between your parents (or guardians) as to the most suitable high school program for you in grade 11?

Complete Disagreement	Partial Disagreement	Agreed Fairly Well	Complete Agreement
☐	☐	☐	☐

24. PARENTS' ATTITUDE TOWARDS YOUR HOME STUDY HABITS AND EFFORTS

Very Much Dissatisfied	Rather Dissatisfied	Fairly Satisfied	Very Much Satisfied
☐	☐	☐	☐

25. PARENTAL INTEREST IN YOUR DAY-TO-DAY SCHOOL PROGRESS, YOUR SUCCESS IN HIGH SCHOOL IN GRADE ELEVEN, AND IN YOUR SCHOOL AFFAIRS IN GENERAL.

No Interest	Very Little Interest	Considerable Interest	A Great Deal of Interest
☐	☐	☐	☐

PART TWO

In questions 1 to 17 (inclusive) use check marks (/).
In questions 19 and 20 write answers as indicated.

NOTE: Most of the questions refer to your grade eleven year which was last year. They do not refer to the present school year.

	Yes	No
1. Did you have a definite career goal in mind in grade 11?		
2. Did you like attending school in grade eleven?		
3. Did you want to quit school at the end of grade eleven?		
4. Did you have a part-time job during your grade 11 year?		
5. Were you determined to finish high school?		
6. In grade 11 were you living with your parents?		
7. Were both your parents living during your grade 11 year?		
8. Were your parents both living with you during grade 11?		
9. Can your parents finance your post-high-school education?		
10. Did your parents insist on choosing your career for you?		
11. Did you plan to get a permanent job after high school?		
12. Did you think you lacked ability to pass grade 12?		
13. Did you speak with your Guidance Counselor while you were in grade eleven?		
14. Did you change your course pattern during grade eleven?		
15. Did you plan to take up a trade after grade twelve?		
16. Did you plan to go to university after grade twelve?		
17. Up to the end of grade 11 had you ever been out of the Province of Alberta?		

18. If you had no idea whatever what you might do after finishing grade 12, place an X in the space below

☐

19. When you were in grade 11 approximately how many hours of home study did you do per week during the school year (1960-61)?

CIRCLE ONE NUMBER ONLY

1 2 3 4 5 6 7 8 9 10 11 12 or more.

20. Which grades, up to the end of grade nine, did you repeat?

CIRCLE THE NUMBERS OF THE GRADES THAT APPLY TO YOU

1 2 3 4 5 6 7 8 9

PART THREE

In this part read the question carefully, then supply a brief, accurate answer in the space provided in each case.

1. How many months old were you (to the nearest complete month) on the first day of September, 1960?

_____ months.

2. How many different communities have you lived in since you started going to school in grade one? (Moving into a different house in the same community doesn't count and should be disregarded.)

1 2 3 4 5 6 7 8 9 10 11 12 or more.

3. While you were in grade eleven what was your father's occupation? (Or, give the occupation of your guardians, foster-parents, or whoever you lived with during your grade eleven year.)

_____

4. When you were in grade eleven which of the following AIDS TO STUDY did you have available in your home (or wherever you lived while you were taking grade eleven?)

(a) Encyclopedia Britannica
(b) Encyclopedia Americana
(c) Encyclopedia Canadiana
(d) Books of Knowledge
(e) The World Book
(f) Junior Britannica
(g) Compton's Pictured Encyclopedia
(h) A good dictionary
(i) A good Atlas
(j) National Geographic Magazine
(k) A daily paper
(l) Reader's Digest
(m) Time Magazine
(n) Newsweek Magazine
(o) Life Magazine
(p) MacLean's Magazine

5. In case the list of learning aids in question 4 (above) doesn't include items that you have and use in your studies at home, use the spaces below in which to list not more than 4(four) other learning aids that you have in your home and that you do use.

1. _____

2. _____

3. _____

4. _____

Your name _____

Address _____

Thank you for completing this questionnaire. Please place it in the envelope provided and either mail it or turn it in to your principal.

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